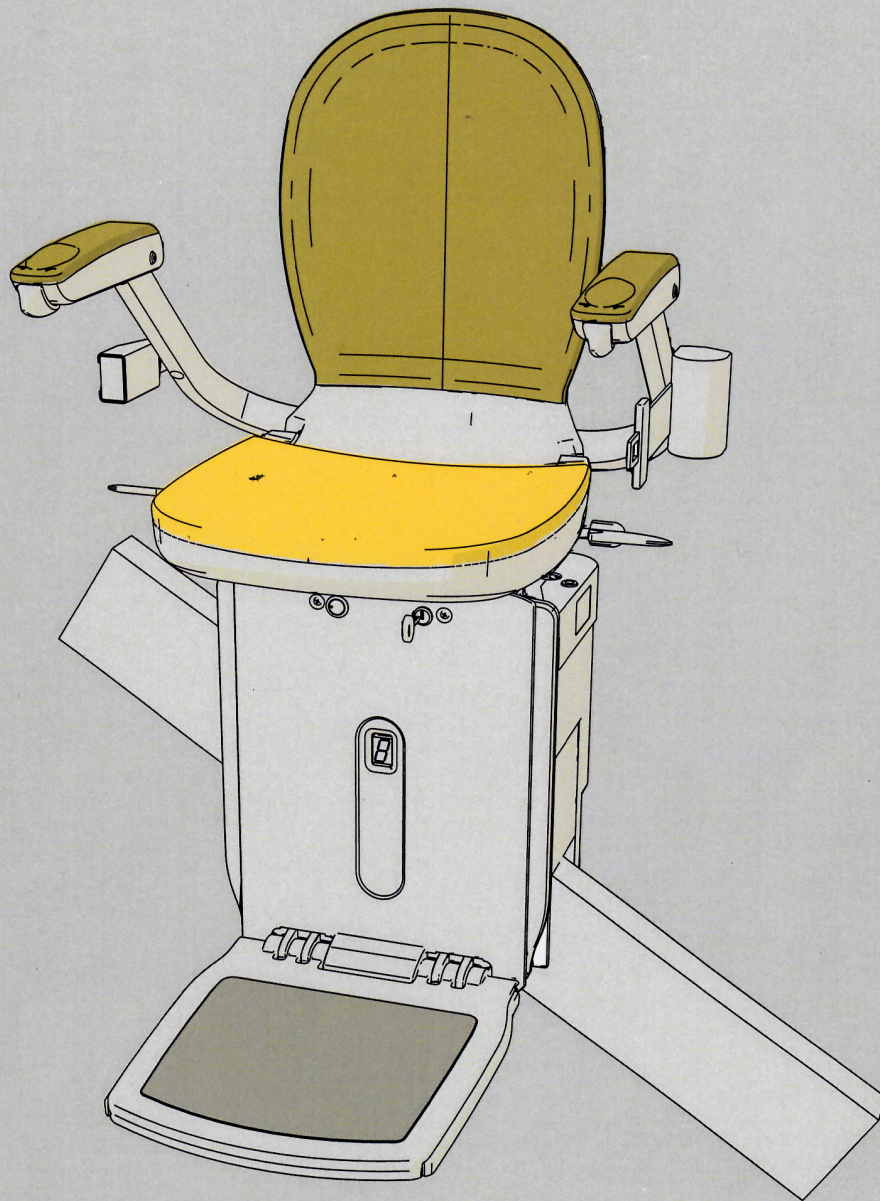


Acorn 180

Training Manual



November 2022

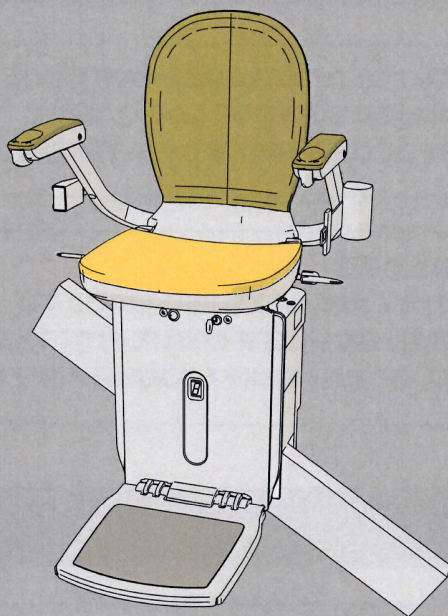
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INTRODUCTION

This manual contains installation (and removal) instructions for the Acorn 180 Stairlift.

1.1 CONVENTIONS

Throughout the manual comments will be inserted as follows:



INFORMATION TO PREVENT A DANGER TO YOURSELF OR OTHER PEOPLE AND/OR DAMAGE TO EQUIPMENT. SUPPLEMENTARY INFORMATION.

1.2 SAFETY

Any national rules and regulations concerning safety, electrical work or environmental protection should supplement, and may supersede, this document.



ON NO ACCOUNT MUST POWER TOOLS BE USED TO WIND THE CARRIAGE ON OR OFF THE RAIL.

1.3 INSTALLATION TRAINING



THIS STAIRLIFT MUST ONLY BE INSTALLED BY TRAINED PERSONNEL. TRAINING CAN USUALLY BE ARRANGED VIA YOUR LOCAL AREA REPRESENTATIVE OR THROUGH THE ACORN TRADE DEPARTMENT.



USA/CANADA ONLY

SOME STATES REQUIRE THAT PERMITS ARE OBTAINED PRIOR TO INSTALLATIONS AND THAT A LICENSED ENGINEER COMPLETES THE INSTALLATIONS. CHECK YOUR LOCAL REGULATORY REQUIREMENTS.

1.4 TRANSPORTATION & STORAGE



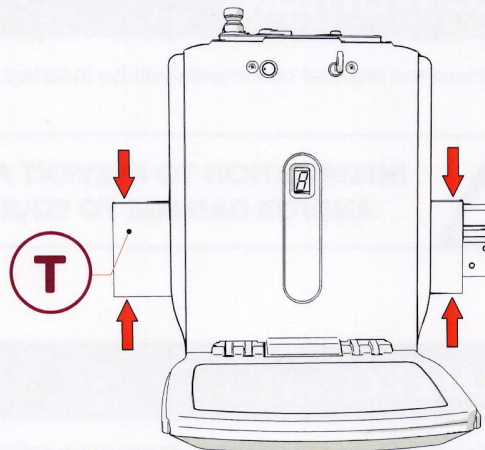
THE CARRIAGE COMES READY FOR INSTALLATION ASSEMBLED ON A 50 PITCH RAIL SECTION (T). IT SHOULD ONLY BE REMOVED FROM THE RAIL WHEN IT IS TRANSFERRED ONTO THE MAIN RAIL SYSTEM. THE 50 PITCH SECTION WILL BE USED WHEN POSSIBLE ON THE MAIN RAIL SYSTEM.

The lift system is supplied in 3 components:

- Rails and Fittings
- Carriage Assembly with a 50 pitch section
- Seat Assembly

The carriage assembly and transfer rail weighs 43.4 Kilograms (96 Pounds).

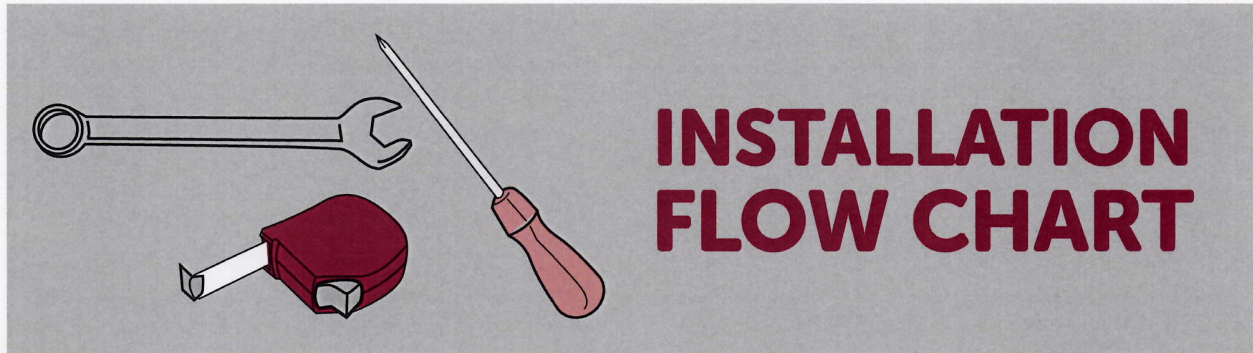
During installation suitable safe lifting procedures to handle this weight must be used. Whenever possible hold the transfer rail to pick up the carriage.



1.5 BEFORE INSTALLATION



SOME INSTALLATIONS REQUIRE AN APPLIANCE TO BE GROUNDED THE USER IS TO ENSURE THAT THIS IS PROVIDED BEFORE INSTALLATION AND A DEDICATED SOCKET ONLY FOR THIS APPLIANCE IS SUPPLIED.

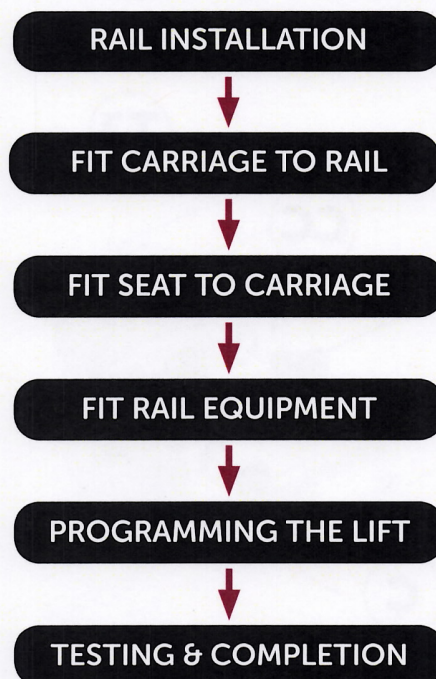


ONLY ACORN TRAINED ENGINEERS SHOULD CARRY OUT STAIRLIFT INSTALLATIONS. ALL STATUTORY RULES AND REGULATIONS CONCERNING SAFETY, ELECTRICAL WORK OR ENVIRONMENTAL PROTECTION MUST BE OBSERVED.

Before Starting An Installation

- 1** Ensure that you have the correct installation drawing if applicable.
- 2** Check all components received are correct and match the drawing and check sheets.
- 3** Carefully remove the lift components from their packaging.

A suggested tool list is included in the Appendix 2.





MAXIMUM LENGTH OF RAIL CANNOT EXCEED 30 METRES

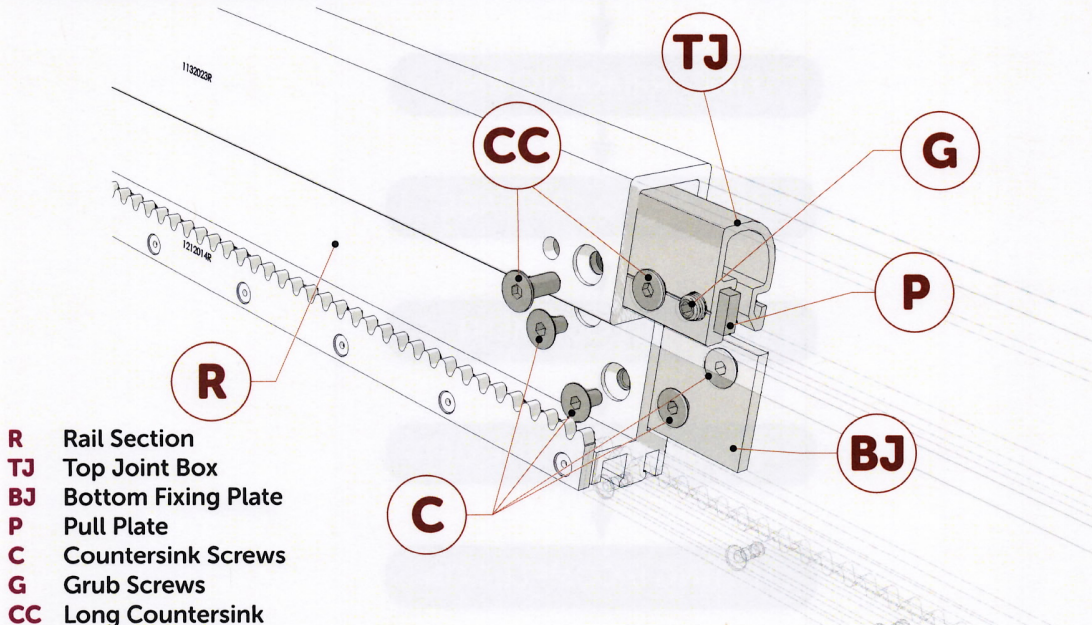


IF THE CARPET ON THE STAIRTREAD IS NOT FULL WIDTH, THEN MAKE THE CUSTOMER AWARE THAT THE FOOT OF THE LEG WILL BE PUSHED UNDER THE CARPET. IT IS THE CUSTOMERS RESPONSIBILITY TO HAVE A CARPET FITTER CUT THE CARPET TO FIT, OR FIT AN INLAID PIECE. WE DO NOT CUT CARPET.

3.1 RAIL JOINTS

The stairlift rail is shipped in several pieces. Refer to the installation drawing that all pieces are correct and marked as per drawing. Check correct number of legs are supplied.

Tighten the rail fixings to the recommended Torque settings in Appendix 3.

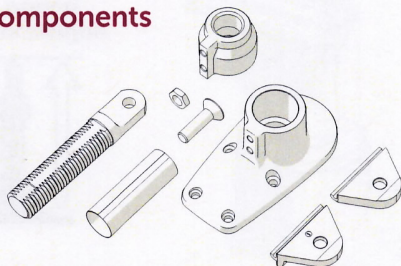


3.2 LEG TYPES

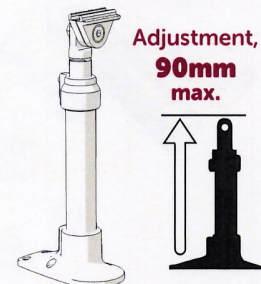
There are 7 standard sizes plus, a short leg and a bottom support leg.

Standard Legs

Components



Assembly



Combination of Standard Leg Components + Different Tube Lengths	Minimum Overall Height	Maximum Overall Height
160 Tube - 70mm	160mm	250mm
221 Tube - 131mm	221mm	311mm
282 Tube - 192mm	282mm	372mm
360 Tube - 270mm	360mm	450mm
440 Tube - 350mm	440mm	530mm
520 Tube - 430mm	520mm	610mm
600 Tube - 510mm	600mm	690mm

Leg Assembly

- 1 Screw the threaded leg (A) into the top aluminium collar (D).
- 2 Attach selected leg tube (B) into the foot. Make sure that the tube is fully inserted into the base of the foot.
- 3 Tighten the grub screws (C) in the foot firmly by hand using Allan Key. If using a torque wrench set to **10Nm** max.
- 4 Attach the top collar and threaded leg onto the leg tube. Make sure that the collar is fully inserted onto the leg tube.
- 5 Turn the threaded leg to the correct required height. Always ensure that there is 5mm of thread protruding. Do not allow more than 90mm of thread to protrude, use the plastic sheath as a gauge (G).
- 6 Tighten the grub screws (F) firmly by hand using Allan Key torque settings of **8Nm** max and **10Nm** max respectively. Make sure the holes are clear of any dirt or filings.



10Nm Max

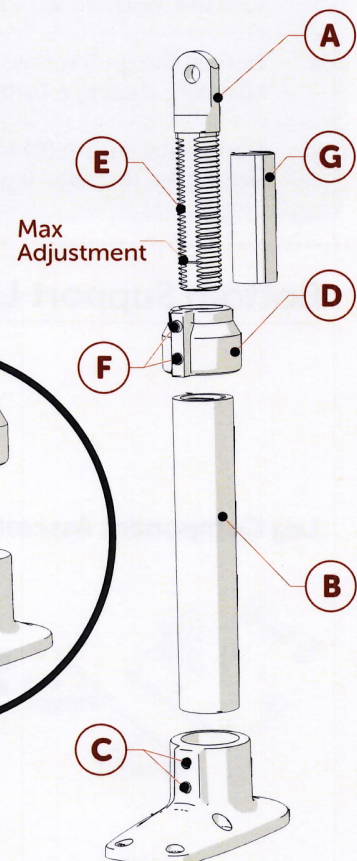
10Nm Max

10Nm Max



DO NOT OVER TORQUE / OVER TIGHTEN

- 7 Trim plastic sheath (G) to correct height and wrap around the threaded leg that is visible.

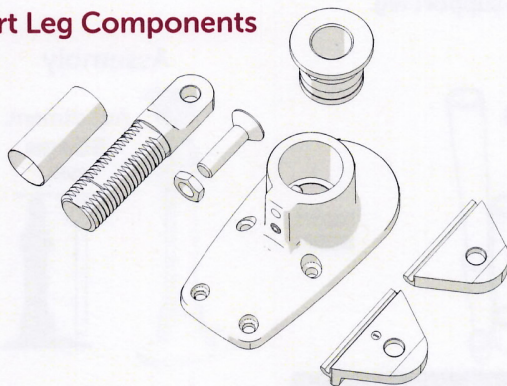


SECTION 3

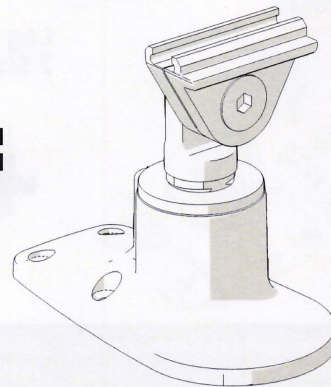
Rail Installation

Short Leg

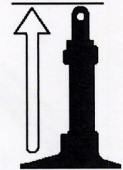
Short Leg Components



Assembly



**55mm
max. leg
height
adjustment**



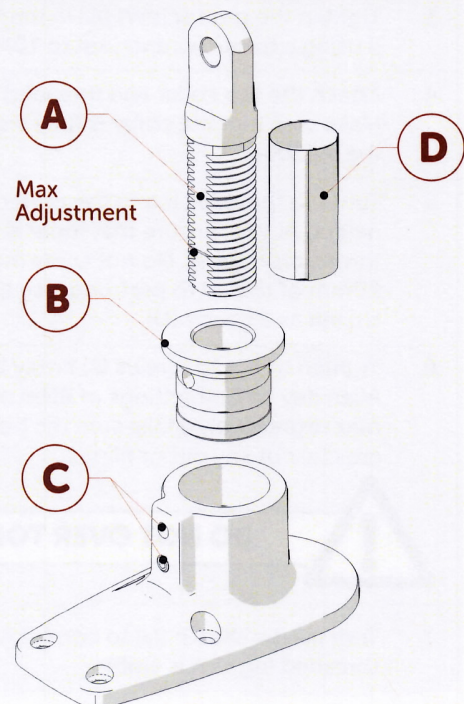
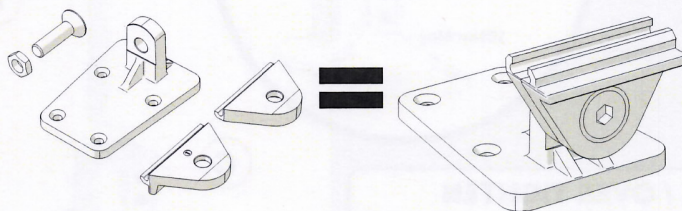
Leg Assembly

- 1 Screw the threaded leg **(A)** into the aluminium collar **(B)**.
- 2 Slot the threaded leg and aluminium collar into the foot.
- 3 Turn the threaded leg to the correct required height.
- 4 Tighten the grub screws **(C)** firmly by hand using Allan Key, if using a Torque wrench set to **10Nm max.**
- 5 Trim plastic sheath **(D)** to correct height and wrap around the threaded leg that is visible.

Short Leg Components	Minimum Overall Height	Maximum Overall Height
No tube	125mm	170mm

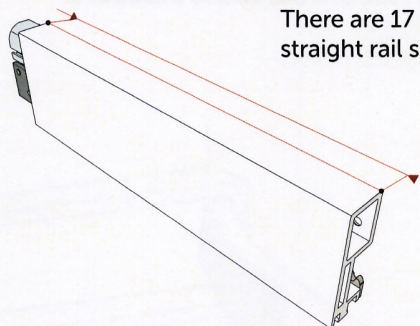
Bottom Support Leg

Leg Component Assembly



3.3 STANDARD RAIL SECTIONS

Straight Rail Sections



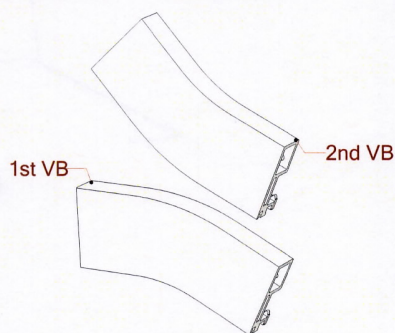
There are 17 different straight rail sections.

X (cm)	
5	13
6	14
7	20
8	30
9	40
10	50
11	100
12	150
	200

1st and 2nd Vertical Bends

Starting from the top of the stairs, a 1st vertical bend will make the rail steeper but a 2nd vertical bend will make shallower.

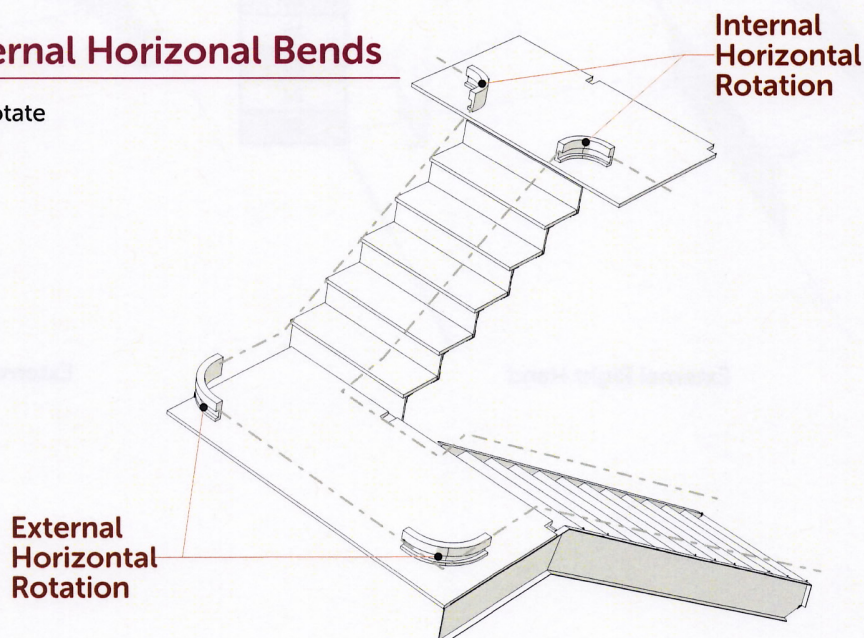
There are 28 different 1st vertical bends and 28 different 2nd vertical bends.



Degrees		
4	22	42
6	24	44
8	26	46
10	28	48
12	30	50
14	32	52
16	34	54
18	36	56
20	38	58
	40	

Internal and External Horizontal Bends

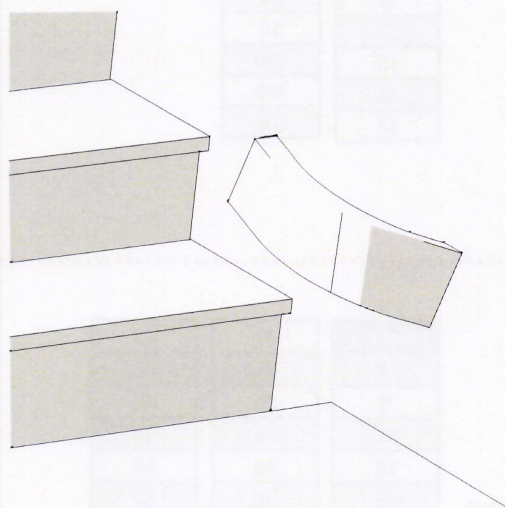
These bends are used to rotate the rail around external or internal rotations.



Internal and External Helical Bends

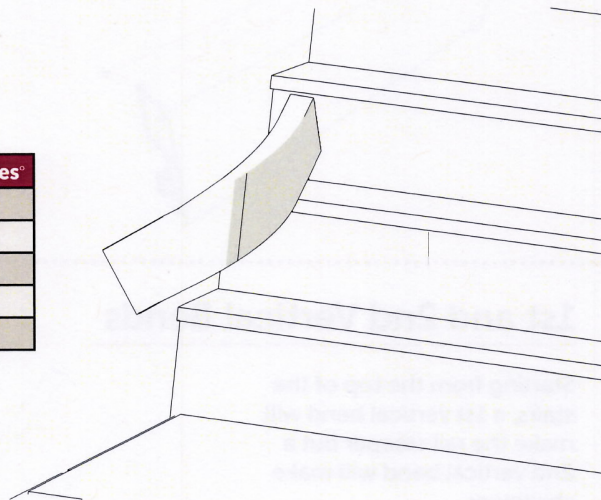
There are four different helical bends, internal or external right hand and internal or external left hand.

These bends are used to rotate the rail around external or internal rotations but also to increase or reduce the rail angle.

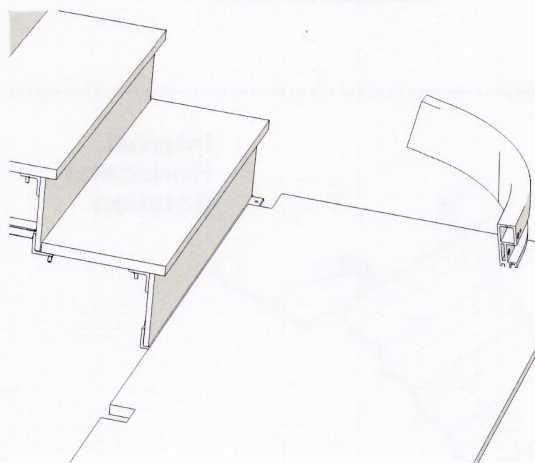


Internal Right Hand

Degrees°
20
24
36
44
48

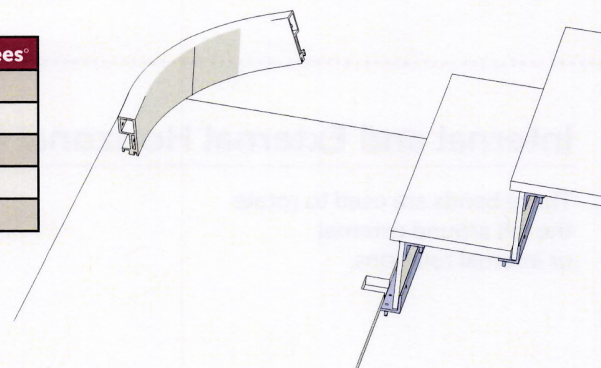


Internal Left Hand



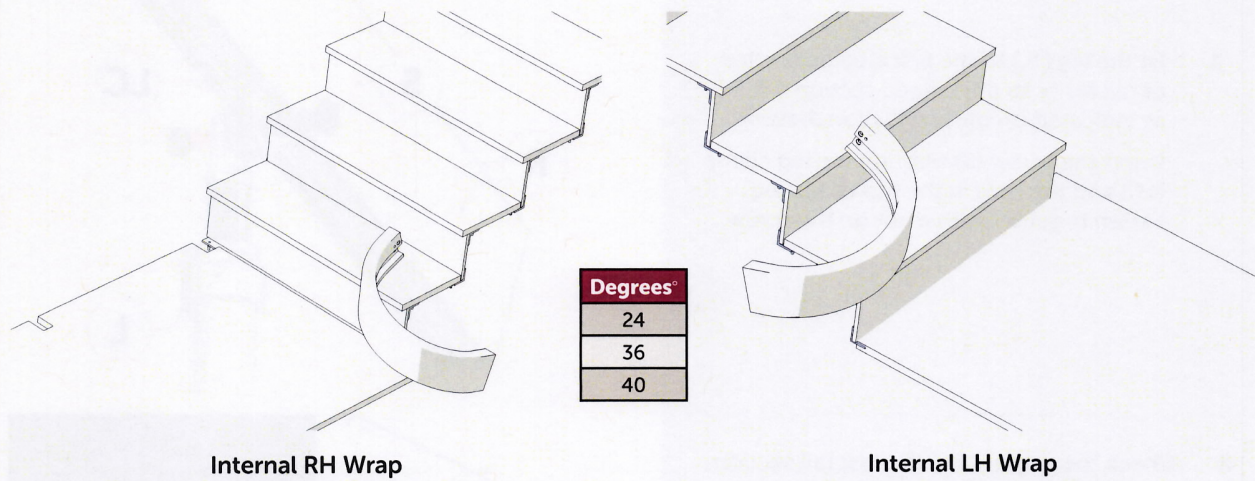
External Right Hand

Degrees°
12
16
20
24
26



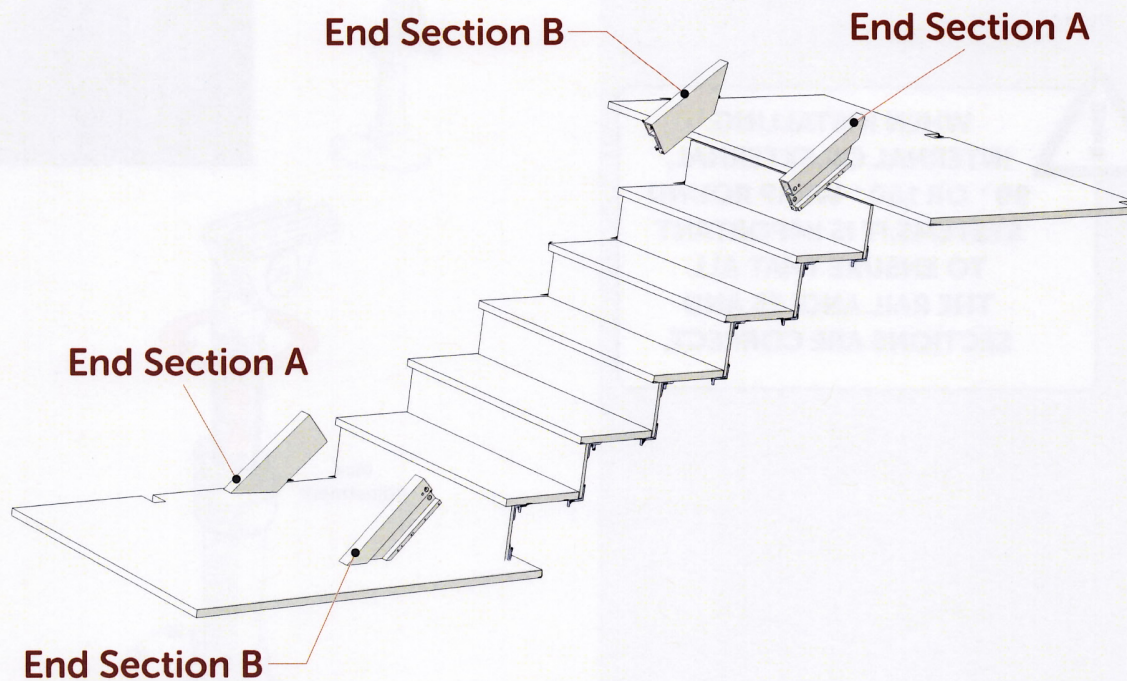
External Left Hand

Internal Helical Wrap Bends



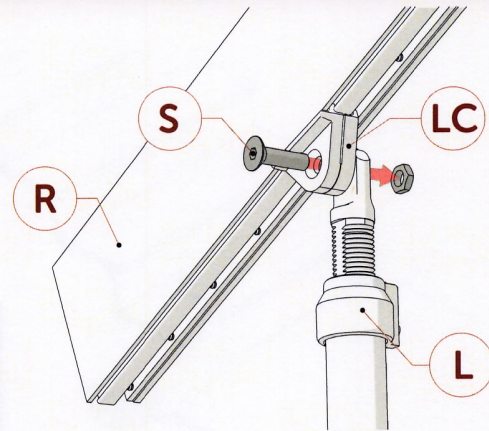
End Sections

There are two different end sections, section A and section B. These sections can be use for the top end or the bottom end of the rail.



3.4 RAIL ASSEMBLY

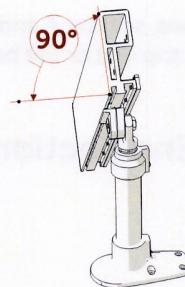
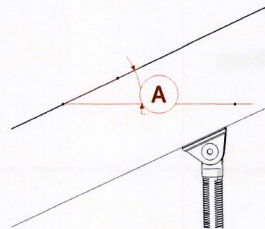
- 1 Fit the legs (L) to the first sloping section of rail (R) or to the hinged section if fitted, as indicated on the installation drawing.
Insert the screw (S) through the leg clamp (LC) and the hole in the top of the leg. Fasten together with a nut on the screw.



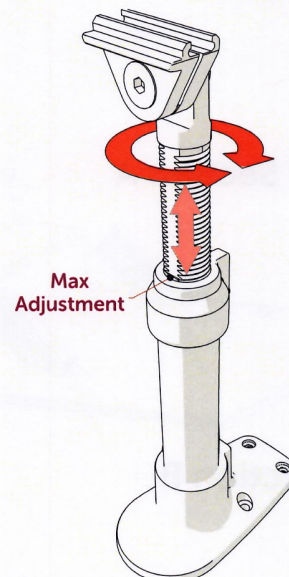
- 2 Check the angle (A) of the first rail section with the installation drawing (when following a CAD drawing).. Ensure face of rail is 90°.

If necessary the legs can be adjusted for height, by screwing the leg up or down in the leg tube, to obtain the correct angle. See sample drawing.

For >>>FastTrack<<< van installations, once the angle is decided, ensure the face of the rail is also 90°.



WHEN INSTALLING, INTERNAL OR EXTERNAL, 90° OR 180° WRAP ROUND SYSTEMS, IT IS IMPORTANT TO ENSURE THAT ALL THE RAIL ANGLES AND SECTIONS ARE CORRECT.



SECTION 3

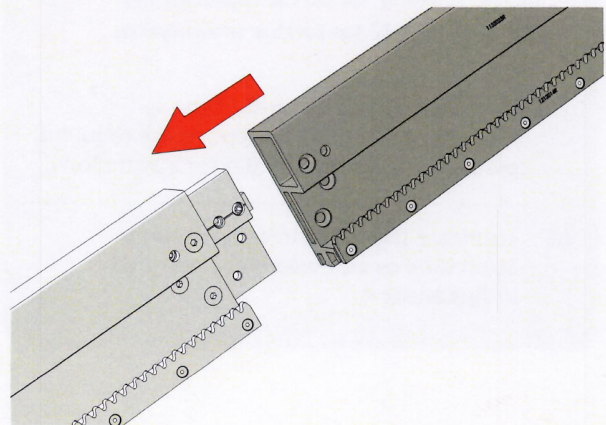
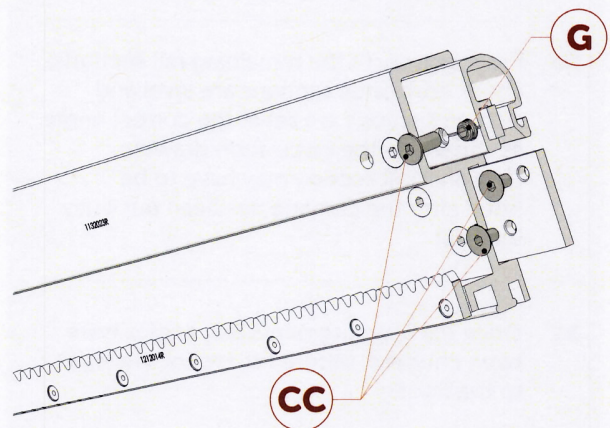
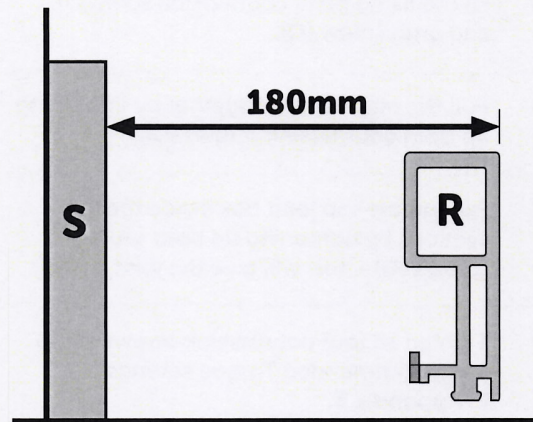
Rail Installation



ENSURE THAT THERE IS AT LEAST 180MM (190 mm on internal installations) CLEARANCE BETWEEN THE WALL STRINGERS (S) AND THE FRONT OF THE RAILS (R) OR ANY OBSTRUCTION TO ENSURE THAT THE CARRIAGE AND SEAT DO NOT COLLIDE WITH THE WALLS OR NEWEL POSTS. PLEASE CHECK YOUR DRAWING FOR REFERENCE IF APPLICABLE.

- 3** Remove screws **(CC)** from protruding sections of top joints and make sure the grub screw **(G)** is loose but not protruding from the joint box.

- 4** Push the rail sections together.



SECTION 3

Rail Installation

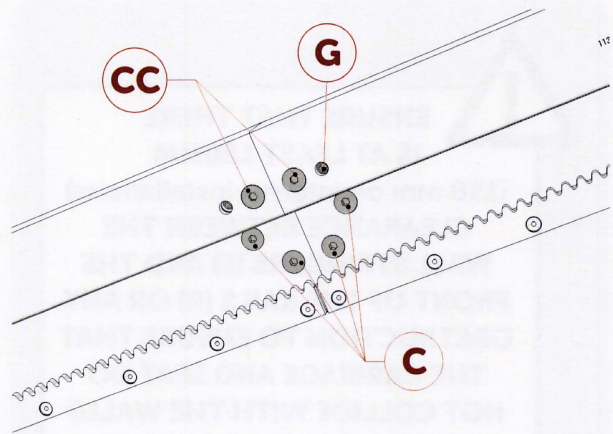
- 5 Fit the fixing plate countersink screws (C) and grub screw (G).
- 6 Pull the rail sections together by tightening up both countersink screws (CC).
- 7 Expand the top joint box inside the rail sections by tightening up both grub screws (G) – this will give the joint rigidity.
- 8 Tighten all four countersink screws (C) to the recommended Torque settings in **Appendix 3**.
- 9 Check the rail joints are aligned with no gaps. Some small adjustment may be possible by loosening the joint box and bottom fixing plate and re-aligning the rail sections.
- 10 Progressively fit the remaining rail sections, check horizontal sections are level and sloping sections are set at the correct angle as shown on the installation drawing. (The final rail section may have to be fitted after the carriage has been put onto the rail.)
- 11 Once the measurements and angles have been checked, secure the feet of the legs to the floor.

PLEASE NOTE: The stairlift should not be programmed until the legs are firmly fixed to the floor. Failing to do so, the carriage electronic level protection could trigger showing H2 on the digital display.

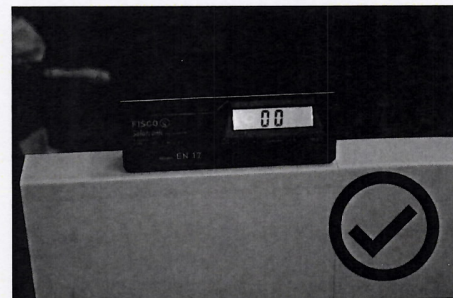
See appendix 12 for further information.

Re-check angles etc and adjust as necessary. If Leg Wall Supports are required, please go to **Appendix 9.4** for instructions.

- 12 Lubricate the rack throughout using Superlube or equivalent as described in **Appendix 4**.



HORIZONTAL SECTIONS MUST NEVER BE LESS THAN LEVEL. NO NEGATIVE DECLINE.



A NEGATIVE ANGLE COULD ACTIVATE THE CARRIAGE MECHANICAL PROTECTION SHOWING F8 ON THE DIGITAL DISPLAY. SEE APPENDIX 12 FOR FURTHER INFORMATION.

3.5 INSTALLATION OF THE POWERED HINGE

- 1 Position the legs on the hinge section of rail as indicated on the installation drawing.
- 2 Fix the hinge section of rail to the next section of rail indicated on the installation drawing using the joint fixing kit.
- 3 Position the Acorn 180 rail system in place on the staircase as indicated on the installation drawing.



THE HINGE WIRING IS LOCATED ON THE UNDERSIDE OF THE HINGE SECTION, THEREFORE CARE MUST BE TAKEN NOT TO DAMAGE IT WHILST HANDLING THE HINGE.

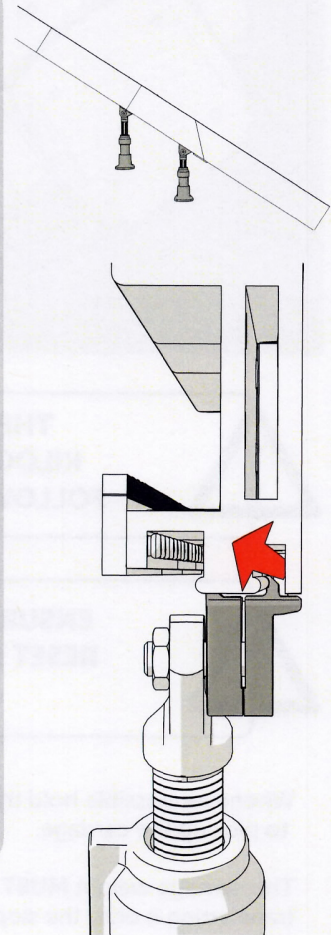
- 4 The cabling for the hinge interlock switch and the motor/hinge folded switch should be run carefully along the rail in the leg fixing bracket channel to the hinge control box which has been mounted in a suitable location.



DO NOT USE A STAPLE GUN TO HOLD /FIX THE HINGE WIRING IN PLACE.

- 5 The hinge box must be mounted in a position where it will not interfere with the normal travel of the lift. Suitable positions would be at the top of the rail or in a corner of the installation.

The wiring for the powered hinge is connected as shown in **appendix 5.4**. Ensure mains power is switched off and unplugged.



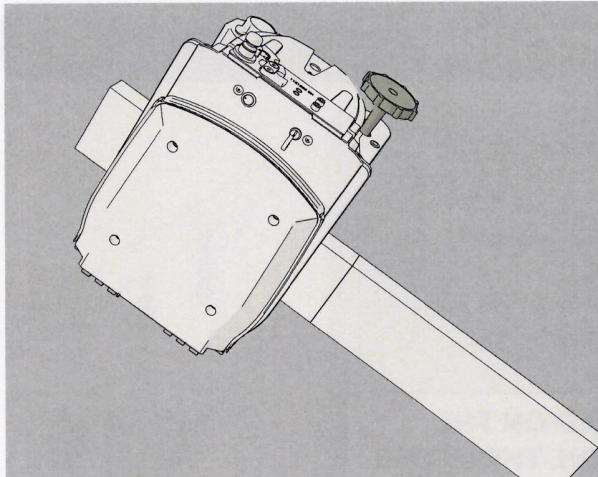
Hinge Operation

Using the directional switch on the arm

Using the arm control will start the lift in motion. When the lift reaches or leaves the set hinge point, the stairlift will stop and the powered hinge will be automatically raised or lowered at the bottom of the staircase. This will allow the user to operate the hinge whilst in a line of sight. Using the arm switches, the lift will override an intermediate charge point (if fitted) installed within a distance of 1.5 metres from the hinge activation point L8.

Using the remote control

Once you are finished using the stairlift; pressing the UP button on the remote handset will automatically run the lift to either, an intermediate charge point if fitted or the top charge point.



FITTING CARRIAGE TO RAIL



THE CARRIAGE ASSEMBLY AND TRANSFER RAIL WEIGH 43.4 KILOGRAMS (96 POUNDS). THE INSTALLATION ENGINEER MUST FOLLOW SAFE HANDLING PROCEDURES TO HANDLE THIS WEIGHT.

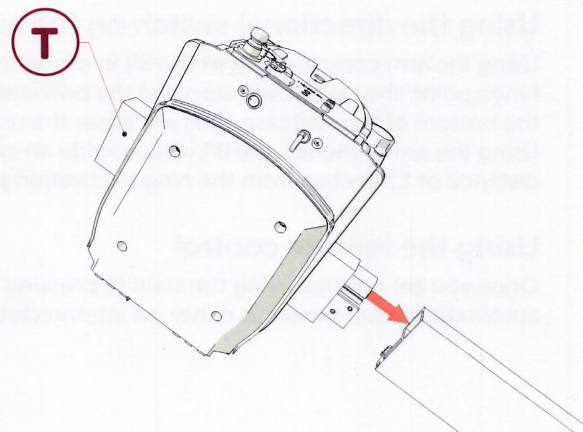
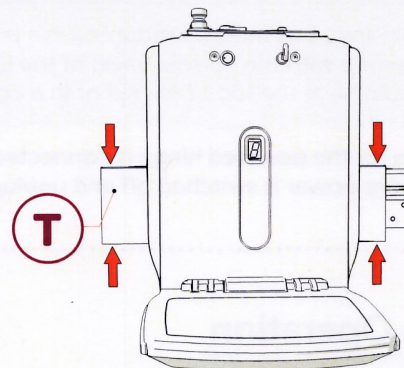
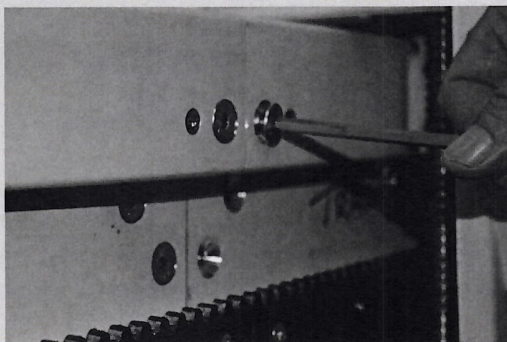


**ENSURE THAT OSG HAS NOT BEEN ACTIVATED DURING TRANSIT
RESET IF NECESSARY FOLLOWING PROCEDURE IN APPENDIX 10.1
(RESETTING THE OSG).**

Whenever possible hold the racked transfer rail (T) to pick up the carriage.

The carriage weight **MUST BE SUPPORTED** when transferring it onto the sloping section of rail.

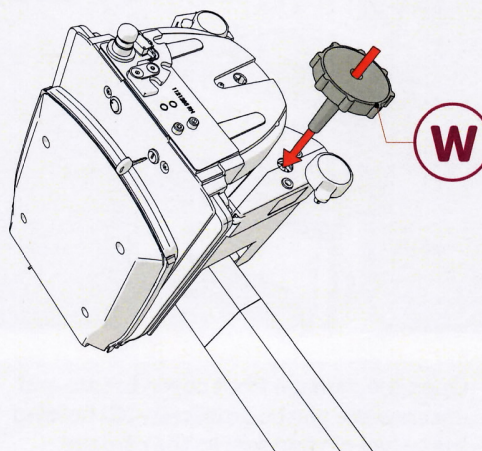
- 1 Fit the transfer rail (T) and carriage over the joint box. The carriage may be transferred onto a horizontal section of rail or a sloping section as shown here. Fit one screw to pull plate.



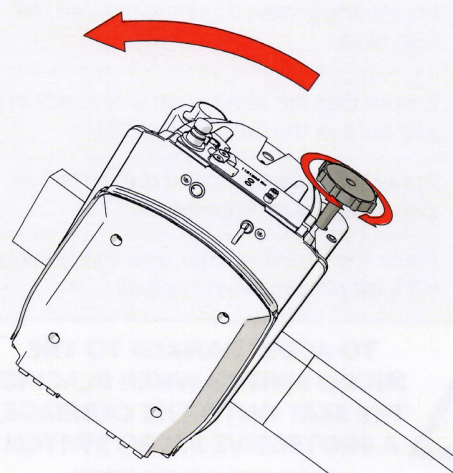
SECTION 4

Fitting Carriage to Rail

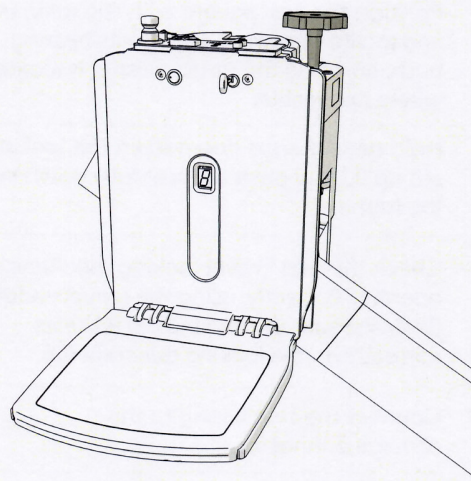
- 2** Fit the winding handle (W) onto the top of the levelling motor.

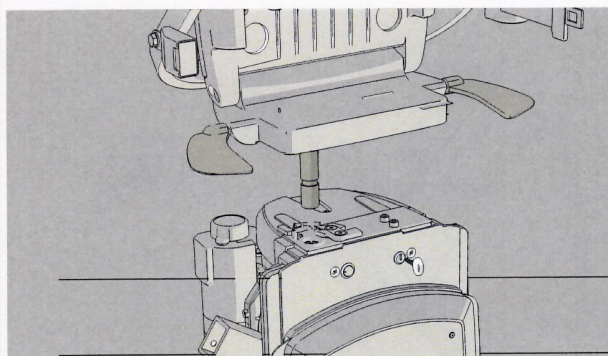


- 3** Level the carriage as required.



- 4** Check the carriage is level with a spirit level on the footrest.





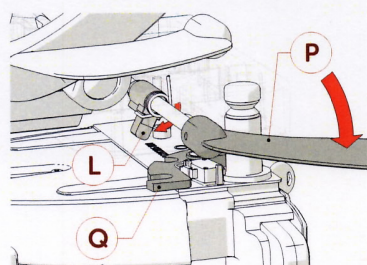
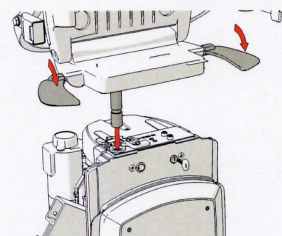
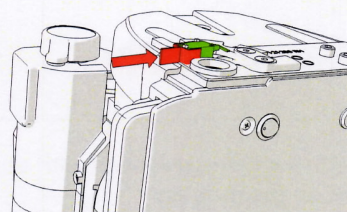
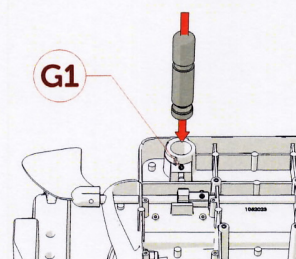
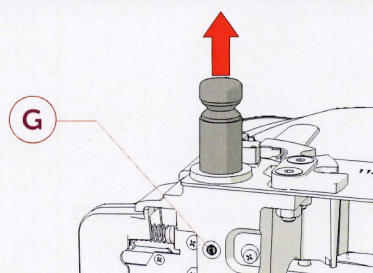
FITTING SEAT TO CARRIAGE

- 1 Open the carriage front cover. Locate and unscrew the plastic grub screw (**G**) holding the swivel pin and seat to the carriage.
- 2 Remove the seating pin from the carriage.
- 3 Locate the grooved seating pin into the seat base.
- 4 Ensure that the seating pin is securely in place and tighten the grub screw (**G1**).
- 5 Apply the recommended grease to the swivel pin – see **Appendix 4**.
- 6 Place the thrust washer over the swivel pin. (Only applies to power swivel).



TO AVOID DAMAGE TO THE MICRO SWITCH WHEN PLACING THE SEAT ONTO THE CARRIAGE, A PROTECTIVE MICRO SWITCH CLIP COULD BE USED.

- 7 Position the seat square with the main frame and locate the swivel pin into its bearing bush, ensuring the thrust washer is located, where applicable.
- 8 Hold paddle arms down to lift the locking pin up (**L**) and push the seat fully down into the frame.
- 9 Check the seat swivel locking mechanism operates correctly, using the swivel paddles (**P**). Make sure the locking pin (**L**) seats correctly on the locking quadrant (**Q**).
- 10 Connect the seat wiring to the carriage connector.
- 11 Re-fasten the plastic grub screw (**G**) to secure the seating pin into the carriage. Close the carriage front cover.



SECTION 6

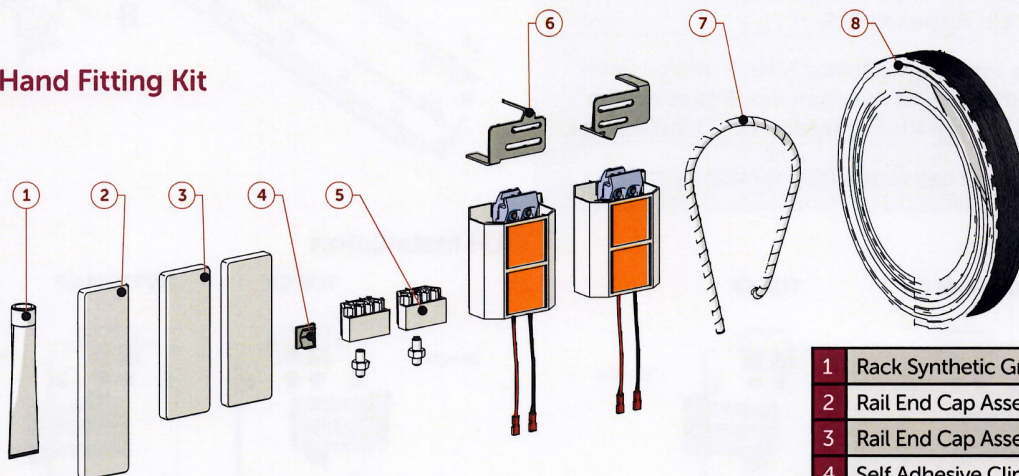
Fitting Rail Equipment



6.1 FITTING KITS

There are two types of fitting kits, right and left hand.

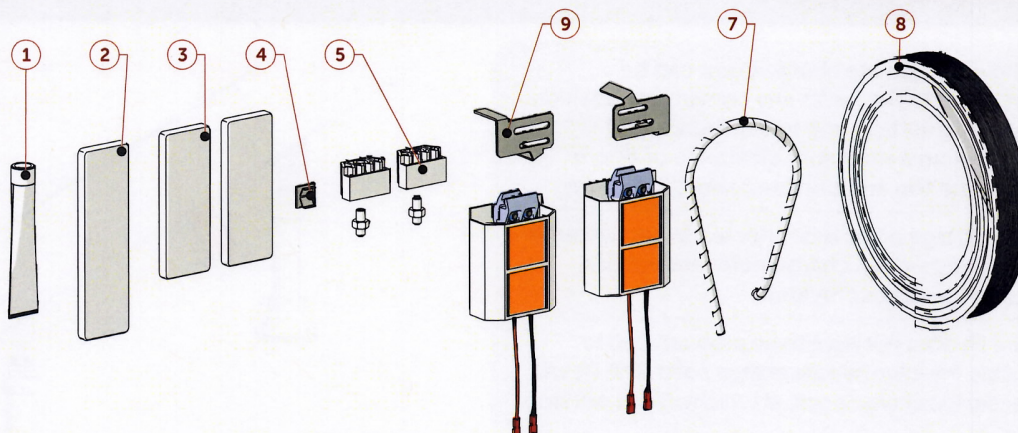
Left Hand Fitting Kit



- | | |
|---|-------------------------------|
| 1 | Rack Synthetic Grease (12gr) |
| 2 | Rail End Cap Assembly 45 |
| 3 | Rail End Cap Assembly 90 x2 |
| 4 | Self Adhesive Clips |
| 5 | Physical End Stop Assembly x2 |
| 6 | Charge Point LH x2 |
| 7 | Spiral Cable Wrap |
| 8 | Charge Point Cable |
| 9 | Charge Point RH x2 |

Includes Country Specific
Mains Lead

Right Hand Fitting Kit



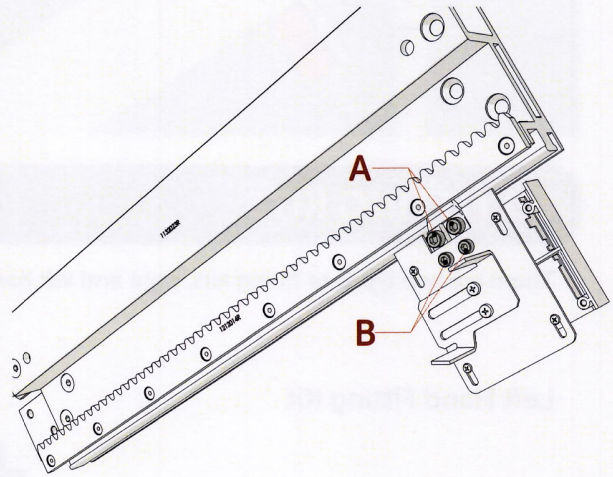
SECTION 6

Fitting Rail Equipment

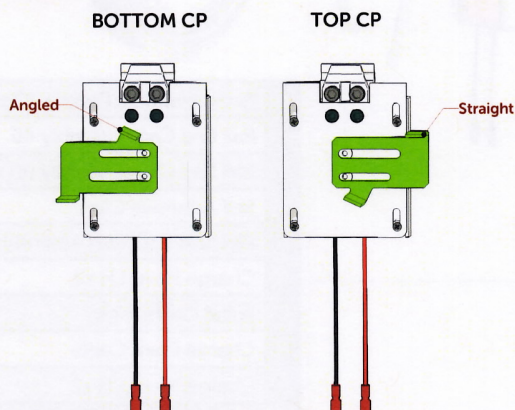
6.2 FITTING EQUIPMENT TO THE RAIL

Fix the charge points to the rail using the screws (A) (see torque setting in **Appendix 3**). Set parallel to the rail using the screws (B). Make sure the charge point is not leaning backwards, pull forward if required to correct its position and re-tighten

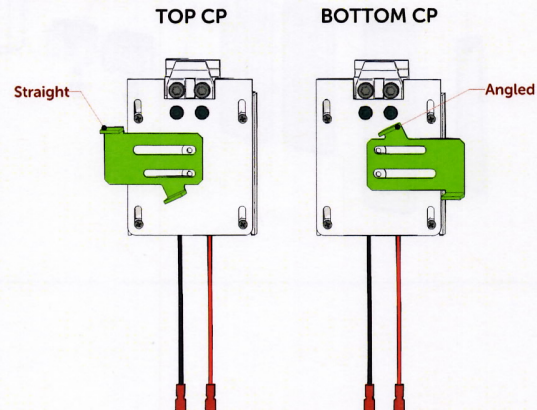
- 1 If necessary move the lift back along the rail using the winding handle.
- 2 Fit the top, intermediate (if required) & bottom charge points to the rail. Connect the charge points to the power supply as shown in **Appendix 5.1**.
- 3 Test all charge points with a voltmeter (33v DC) and make sure the polarity is correct as shown in **Appendix 5.1**.
- 4 Fit the top & bottom limit switch striker plates onto the back of the charge points as shown in the images RH Installation or LH installation.
- 5 Fit the end cap to the final section of rail.



RH Installation

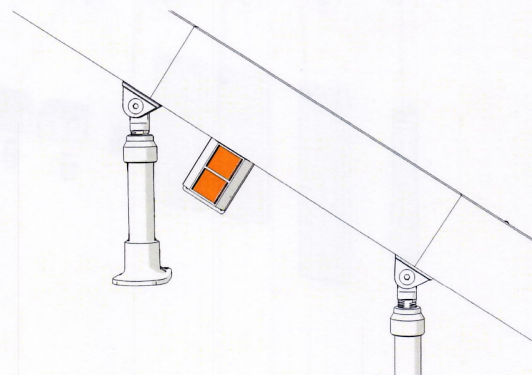


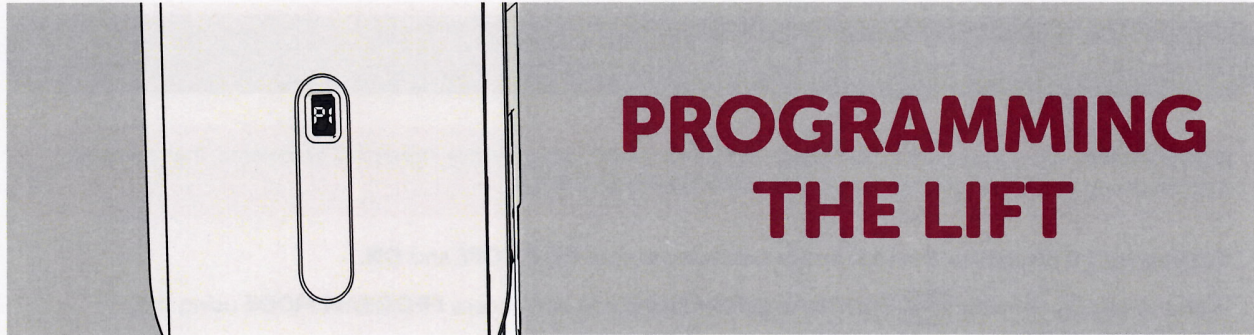
LH Installation



6.3 INSTALLATION OF AN INTERMEDIATE CHARGE POINT

- 1 The intermediate charge point can be fastened to the rail at any convenient position avoiding vertical and helical bends and respecting a minimum clearance of 80cm from the top and bottom parking positions..
- 2 The charge point is connected in parallel with the standard rail charge point assemblies using the cable provided.
- 3 The lift does not have to be programmed to locate the intermediate charge point. The lift will locate the charge point, at which point it will stop.





7.1 POWER UP FOR THE FIRST TIME

PLEASE NOTE: Before powering the lift up for the first time, make sure you have 33 Vdc at every charge point on the rail system.

Level the lift by hand and remove the front cover.
Remove the tape from both red battery leads.
Connect both red leads to the control board positive terminals.
Replace the front cover.
Switch the lift **ON**.

7.2 FEEDING THE CARRIAGE ONTO THE RAIL

PLEASE NOTE: Ensure the seat arms are down when operating the Stairlift.

The Stairlift should be driven from the transfer rail onto the main rail in program mode **P1**.
Only remote control operation.

If the display shows **U1** (**SETTING HAND MODE**), the Stairlift needs to be handed using the following procedure:

- With **U1** on the display, press **UP** on the arm toggle switch once. The lift will automatically select the hand showing **U2** (**LEFT HAND**) or **U3** (**RIGHT HAND**).

PLEASE NOTE: If you select the wrong hand by mistake, turn the lift **OFF** and start again.

With **U2** or **U3** on the display, you have the choice of accessing **PROGRAM MODE** or returning to **NORMAL OPERATION** using the following procedure:

- For **PROGRAM MODE**.
Press **UP** again on the arm toggle switch to access **P1**.
- For **NORMAL OPERATION**
Press **DOWN** on the arm toggle switch for returning to normal operation.

Using the RF remote control*, drive the lift from the transfer rail onto the main rail.
The lift should stop on the top charge point automatically.

PLEASE NOTE: You are recommended to leave the lift on the charge point for at least 30 minutes prior to programming.

* See Appendix 7 for instructions of how to pair a remote control.

7.3 PROGRAM MODE STAGE 1

PLEASE NOTE: When you access **PROGRAM MODE P1**, the program already stored will be deleted. If you require a speed change after the program is completed **GO TO APPENDIX 8.1**

Position the lift just below the top charge point and switch the lift **OFF** and **ON**.

With the display showing **⏏** ***(NORMAL OPERATION)** you can access **PROGRAM MODE** using the following procedure:

- Fold the footplate up.
- Press and **HOLD** simultaneously the up and down carriage (**E4 E5**) and the under plate (**E3**) safety edges for 3 seconds. The lift will display **⏏** (**SETTING HAND MODE**).
- Press **UP** on the arm switch once. The lift will automatically select the hand showing **⏏** (**LEFT HAND**) or **⏏** (**RIGHT HAND**).

* If a different fault code is displayed, solve the issue before entering program mode.

PLEASE NOTE: If you select the wrong hand by mistake, turn the lift **OFF** and start again. Once in **PROGRAM MODE**, do not turn the lift **OFF** by the key switch or **On/Off** switch or the lift will return to **NORMAL OPERATION** and the program will be lost.

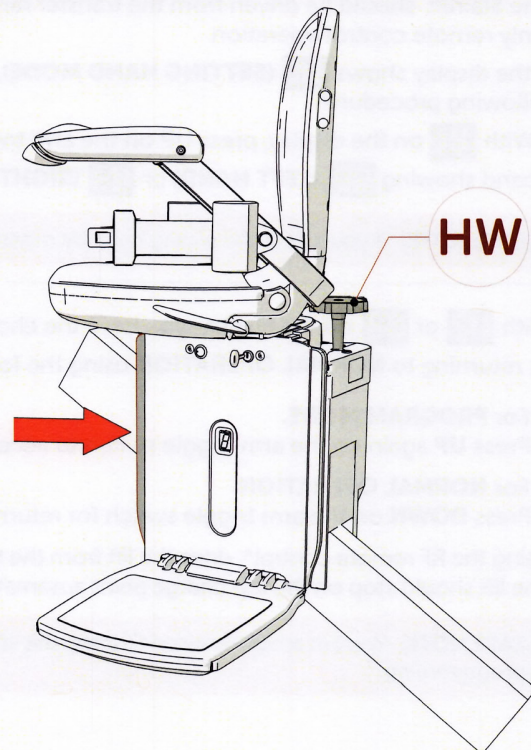
- Press **UP** on the arm switch again to access **P1 (PROGRAM MODE)**.

7.4 PROGRAMMING THE RAIL

Setting level reference in **P1** mode

When **P1** is shown, using a spirit level on the footrest, level the chair manually on the levelling motor using the hand winding wheel (**HW**), and then press the **UP** carriage safety edge **E5** on the carriage to accept this mechanical reference.

The lift will beep twice confirming the acceptance of that level reference. The display will remain in **P1**. Return the seat to the travel position.

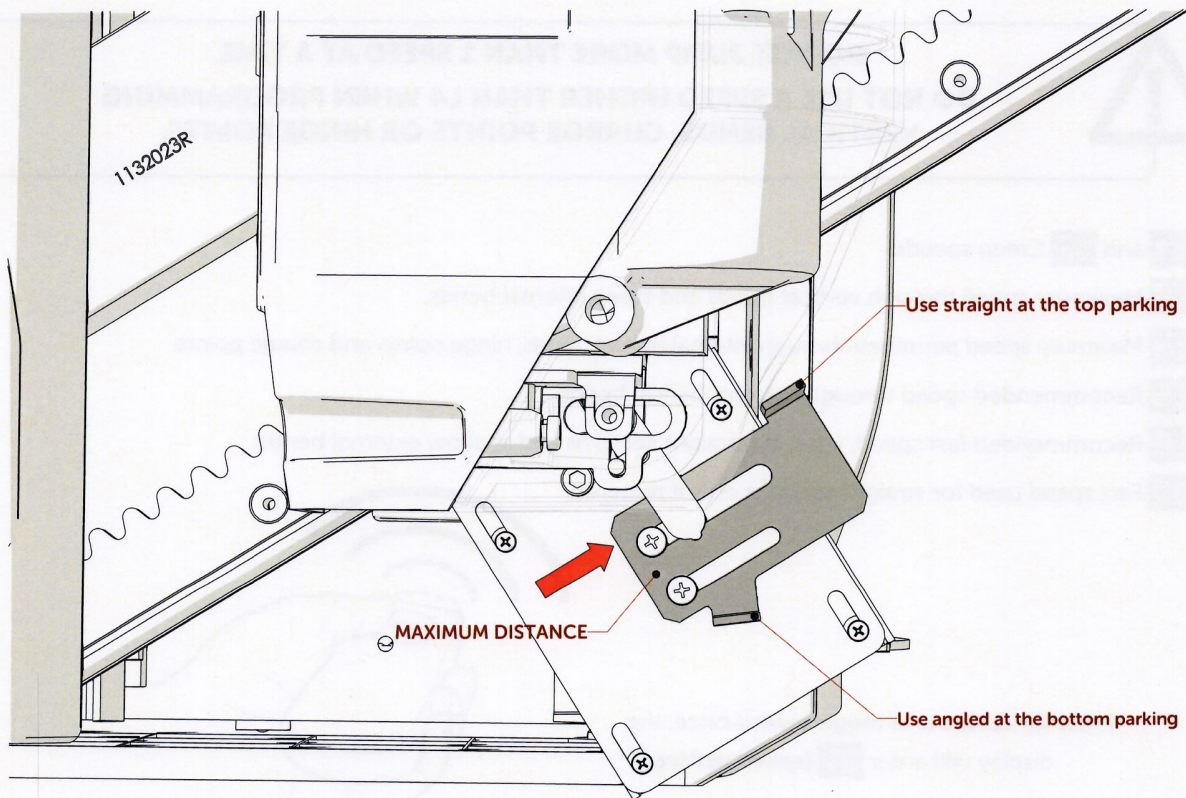


7.5 PROGRAMMING THE TOP STOP

PLEASE NOTE: In **P1** mode, the lift will only travel using the RF remote control.

If required in **P1** mode, you can change the speed of the lift using the arm toggle switch. With the lift stopped, press **UP** to increase the speed or **DOWN** to decrease it.

Drive the lift onto the top charge point. The lift should stop automatically. Parked at the top charge point, make sure the final limit striker plate is set to its maximum adjustment possible (see image below for reference).



PLEASE NOTE: If the lift enters **P2 MODE** accidentally or in the wrong place, you must exit **PROGRAM MODE** by turning the lift **OFF**, and start the programming procedure again.

Drive the lift **UP**. The lift should activate the final limit striker and stop. The display will show **P2** (**PROGRAM MODE STAGE 2**).

Drive **DOWN** to deactivate the final limit switch and stop on the charge point. The display will remain in **P2** (**PROGRAM MODE STAGE 2**).

7.6 PROGRAM MODE STAGE 2 - JOURNEY FROM TOP CHARGE POINT TO BOTTOM OF THE RAIL

PLEASE NOTE: In **P2** mode, the lift will only travel using the RF remote control.

In **P2** mode, you can change the speed of the lift using the arm toggle switch.

With the lift stationary, press **UP** to increase the speed or **DOWN** to decrease it.

If the wrong speed has been programmed Exit program mode by turning the lift off, and start the programming procedure again.



**DO NOT JUMP MORE THAN 1 SPEED AT A TIME.
DO NOT USE A SPEED HIGHER THAN L4 WHEN PROGRAMMING
VERTICAL BENDS, CHARGE POINTS OR HINGE POINTS.**

L1 and **L2** Creep speeds.

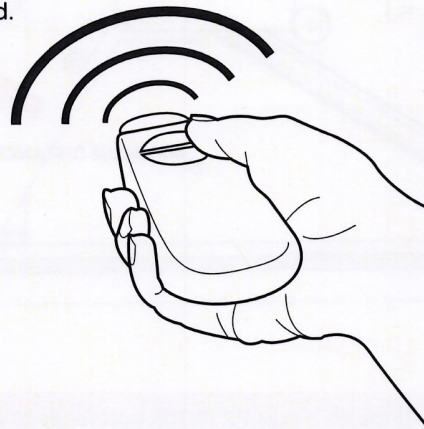
L3 Maximum speed through vertical bends and steep internal bends.

L4 Maximum speed permitted through internal helical bends, hinge points and charge points.

L5 Recommended speed through external helical bends.

L6 Recommended fast speed, used for straight sections and shallow external bends.

L7 Fast speed used for straight sections only if required.



Press **UP** on the arm toggle switch once, the display will enter **L1** (speed settings).

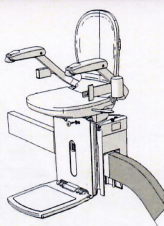
7.7 LEAVING TOP CHARGE POINT

Select **L4** and drive down the rail until the lift is off the top charge point. Increase/decrease speeds gradually depending on the rail configuration and stop the lift **before** selecting a new speed.

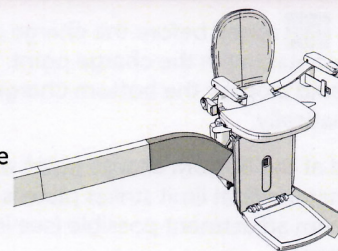
PLEASE NOTE: Only increase one speed at a time using at least 50mm of every speed

7.8 APPROACHING /TRAVELLING THROUGH BENDS

Decrease the speed selecting a maximum of **L3** at the top joint of the coming bend.



Drive over the bend in the speed selected **L3**. Travel through the bend until the back of the lift has completely passed the bottom joint of the bend.



Increase speeds to rail configuration. Repeat this process on every vertical bend on the rail.

PLEASE NOTE: Avoid stopping the lift half way through bends.

7.9 APPROACHING MID CHARGE POINT

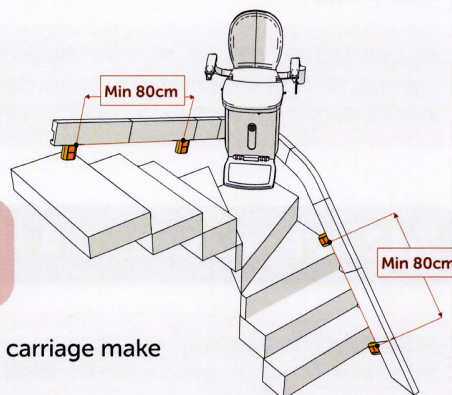
PLEASE NOTE: The lift will automatically stop and apply a soft stop when detecting the voltage of any charge point.

When adding an intermediate charge point to a T565 rail system, please be aware that a minimum clearance of 80cm between the top/bottom charge point and any intermediate charge point is necessary for the program to operate correctly. Also take this into consideration when upgrading a V5 lift without a hinge to a T565 as the intermediate charge point may need to be moved.

PLEASE NOTE: Remember that, you have the option of ignoring one intermediate charge point when driving under the arm toggles by adding a false **L8** point (hinge activation point) into the program.

Decrease speeds gradually to **L4** before the charge plungers on the carriage make contact with the mid charge point.

Travel through the charge point in **L4** speed and increase the speed after the charge plungers lose the contact with the charge point.



7.10 APPROACHING BOTTOM CHARGE POINT OR HINGE SECTION

PLEASE NOTE: If a **HINGE SECTION** is fitted see "Approaching a **HINGE SECTION** and Bottom Stop" on the next page.

Start decreasing the speed **350mm** before the end of the rail.

7.11 BOTTOM CHARGE POINT AND STOP

Select **L4** speed before the charge plungers make contact with the charge point. The lift should stop on the bottom charge point automatically.

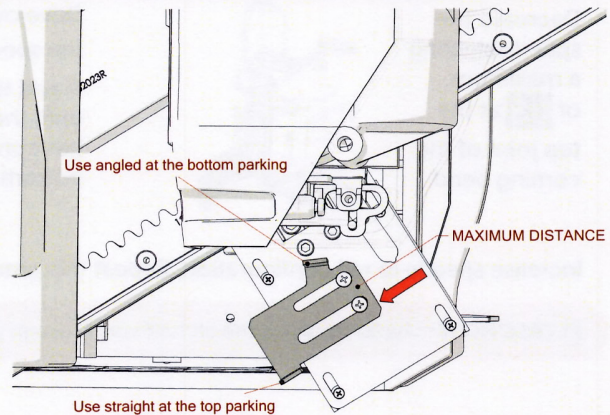
Parked at the bottom charge point, and make sure that the final limit striker plate is set to its maximum adjustment possible (see image for reference)

Drive the lift **DOWN**. The lift should activate the final limit striker and stop. The display should show **P3 (PROGRAM MODE STAGE 3)**.

Drive **UP** to deactivate the final limit striker and stop on the bottom charge point. The display will show **C1** or **C4**.

Drive the lift to the **TOP** charge point to reset the datum point.

The Stairlift will display in **J3** until this step is completed.



Drive the lift to the bottom of the rail to allow the lift to verify the rail length.

Drive the lift to the top to reset the datum again.

Once the above is complete, you can test the lift operation.

PLEASE NOTE: If **Y1, Y2, Y3, Y4** or **P4** shows after programming, the PCB has not accepted the program. Check the specific fault code displayed at the end of this manual for more information and re-program the lift again paying special attention to the distance set at the top/bottom limits and the speeds selected.

7.12 APPROACHING A HINGE SECTION AND BOTTOM STOP

PLEASE NOTE: The hinge section does not have a charge point attached. Manually place the hinge in the down position using the **GREEN** power override button in the hinge control box.

Start decreasing the speed **350mm** before the end of the hinge rail.

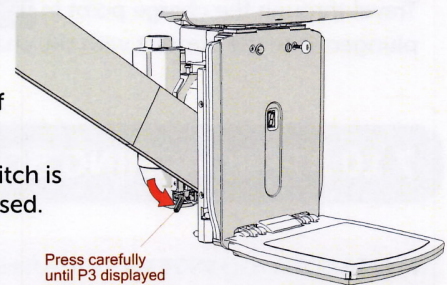
Select **L4** speed **50mm** before the end of the hinge rail.

With the lift stopped, locate the plastic final limit switch at the back of the carriage and activate it carefully until the display changes to **P3**.

The display will show **P3 (PROGRAM MODE STAGE 3)** whilst the switch is activated and will return to normal operation showing **R1** once released.

Drive the lift to the **TOP** charge point to reset the datum.

The Stairlift will display **J3** until this step is completed.



PLEASE NOTE: If **Y1, Y2, Y3, Y4** or **P4** shows after programming, the PCB has not accepted the program. Check the specific fault code displayed at the end of this manual for more information and re-program the lift again paying special attention to the distance set at the top/bottom limits and the speeds selected.

Drive the lift to the bottom of the rail to allow the lift to verify the rail length. Drive the lift to the top to reset the datum again. Once the above is complete, you can test the lift operation.

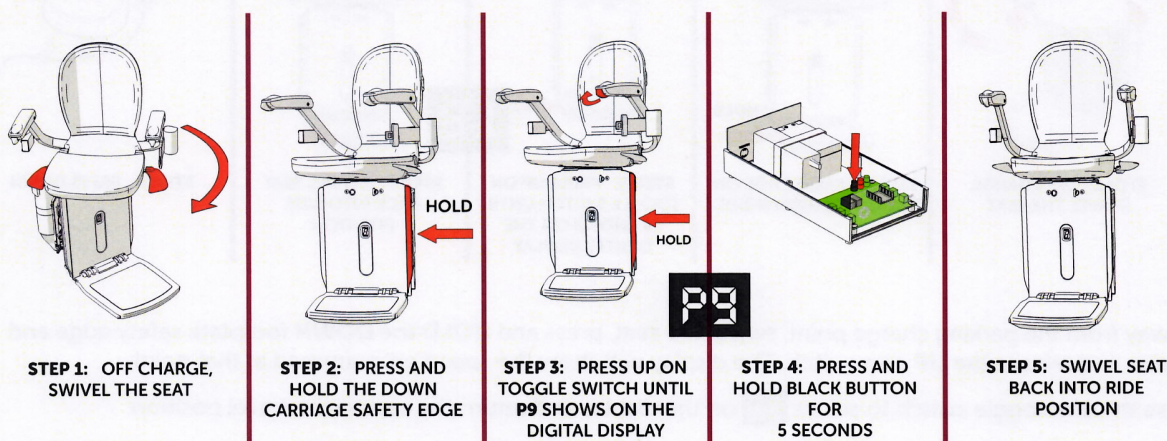
Drive the lift **DOWN** to the desired Hinge Operation Point. Ensure the carriage is stopped **above** and in **line of sight** of the hinge.

INFO: IF NECESSARY, MANUALLY PLACE THE HINGE IN THE UP POSITION USING THE RED POWER OVERRIDE BUTTON TO MAKE SURE ENOUGH SPACE IS ALLOWED FOR THE HINGE TO FULLY FOLD UP.

The process to program the Hinge Operation Point requires:

- Pairing the **HINGE CONTROLLER** first and then;
- Selecting the **HINGE OPERATION POINT**.

7.13 PAIRING THE HINGE CONTROL BOX



While away from a charge point, swivel the seat, press and **HOLD** the **DOWN** carriage safety edge and press the **UP** arm toggle switch once.

The display will show **P9** and the no-charge beeping will stop.

PLEASE NOTE: DO NOT turn the seat back at this point.

Press and **HOLD** the **BLACK** "SEND ADDRESS" button in the hinge control box, until the hinge controller's **LED 1** flashes red and the lift **beeps three times confirming acceptance**.

The lift should return to normal operation displaying **EE**.

Put the seat back to the ride position. The display will show **R1**.

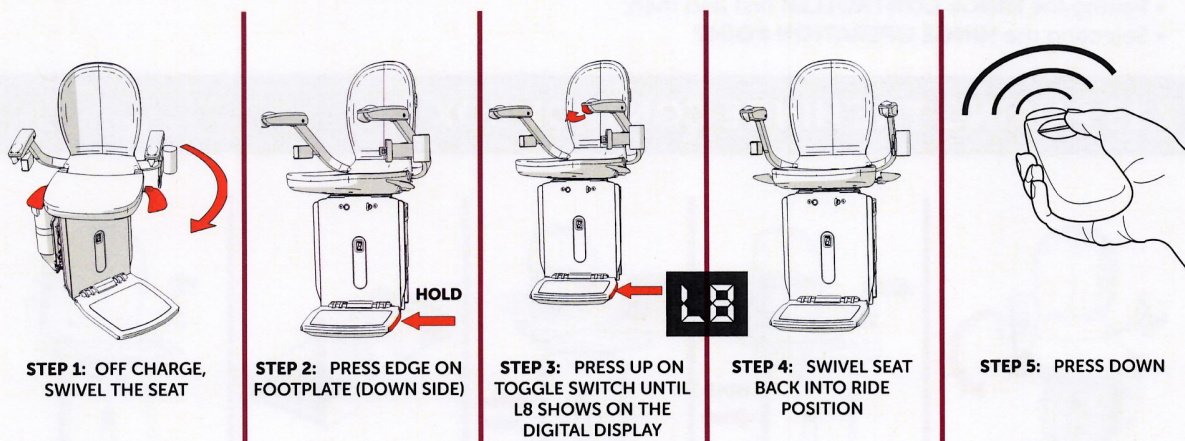
Go to the next page to set the HINGE OPERATION POINT on the rail.

INFO: LED 3 IN THE HINGE CONTROL BOX WILL FLASH RED EVERY 4 SECONDS WHEN THE LIFT IS PAIRED CORRECTLY AND COMMUNICATING WITH THE HINGE CONTROL BOX.

7.14 SETTING THE HINGE OPERATION POINT

PLEASE NOTE: Pair the Hinge control box to the lift before setting up the Hinge Operation Point.

Make sure the Hinge Operation Point is below the parking charge point, **at least 80mm** but in line of sight with the hinge rail section.



Away from the parking charge point, swivel the seat, press and **HOLD** the **DOWN** footplate safety edge and press and release the **UP** arm switch. The display will show the speed programmed at that point.

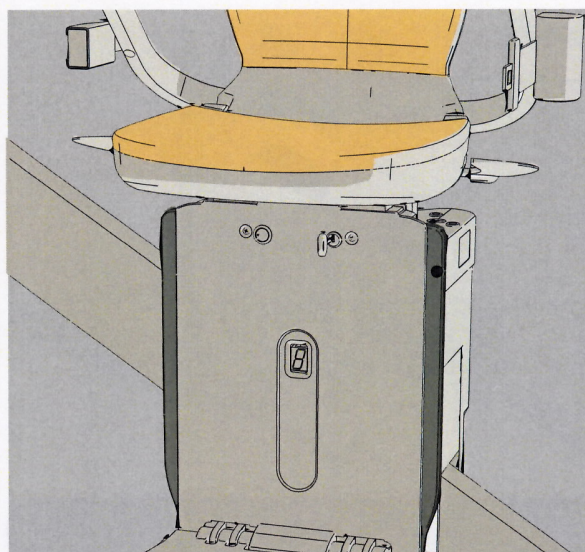
Use the arm toggle switch to select **L8** on the display and return the seat to the travel position.

Press the **DOWN** button on the RF remote control once. The lift will beep twice to confirm acceptance and will return to normal operation displaying **A1**.

PLEASE NOTE: Note: If J8 is displayed move the lift further away from the parking **CHARGE** point and set the hinge operation point again.

The hinge activation point is now set.

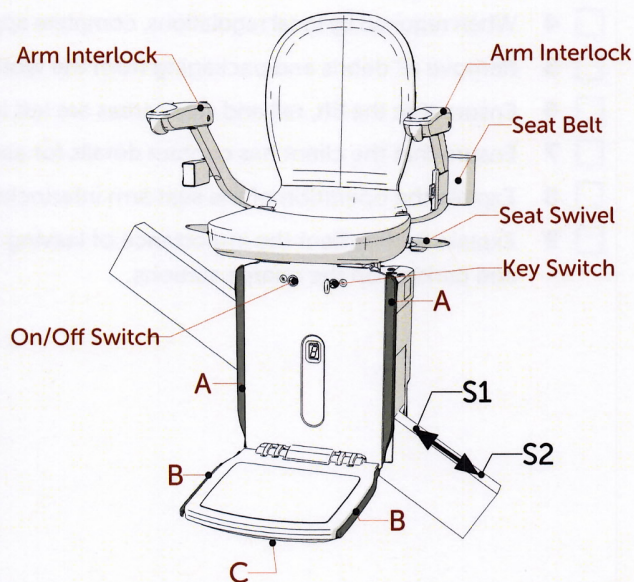
PLEASE NOTE: During normal operation, the Hinge Operation Point can be moved to a new location by following the instructions in appendix 8.6.



TESTING AND COMPLETION

8.1 TESTING LIFT OPERATION

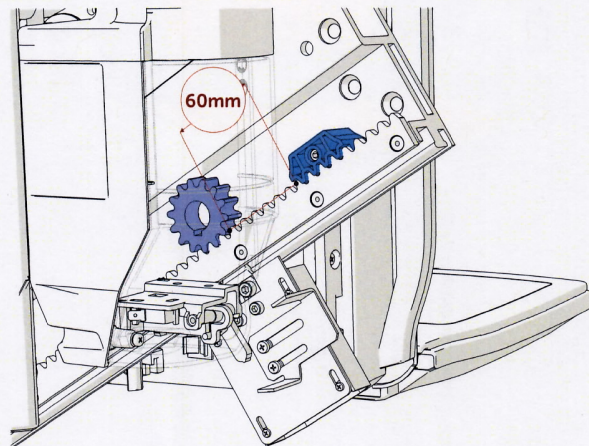
- 1 Test-ride the lift by sitting on it and operating it fully up and down, ensuring that it operates smoothly.
- 2 Put a temporary mark on the rail (**S1**)
- 3 With the lift loaded, and moving down, release the direction controller when the lift reaches the mark (**S1**).
- 4 Measure the stopping distance past the mark (**S2**). The stopping distance should comply with local standards.
- 5 Using the direction controller to move the lift, stop the lift using the **on/off** switch to ensure that the motor brake is functioning correctly.
- 6 Check that the five pressure-sensitive edges (PSEs) stop the lift in the direction of travel. There are two either side of the carriage (**A**), two either side of the footrest (**B**) and one under the footrest (**C**).
- 7 Test the seat swivel switch interlock.
- 8 Test the key switch.
- 9 Test seat arm interlocks.
- 10 Test the seat belt operation.



Fitting the physical end stops

Park at the top of the rail. Taking as a reference the drive pinion, allow a clearance of 6 racking teeth (pitches) when positioning the physical end stop.

Repeat the same process at the bottom parking position.

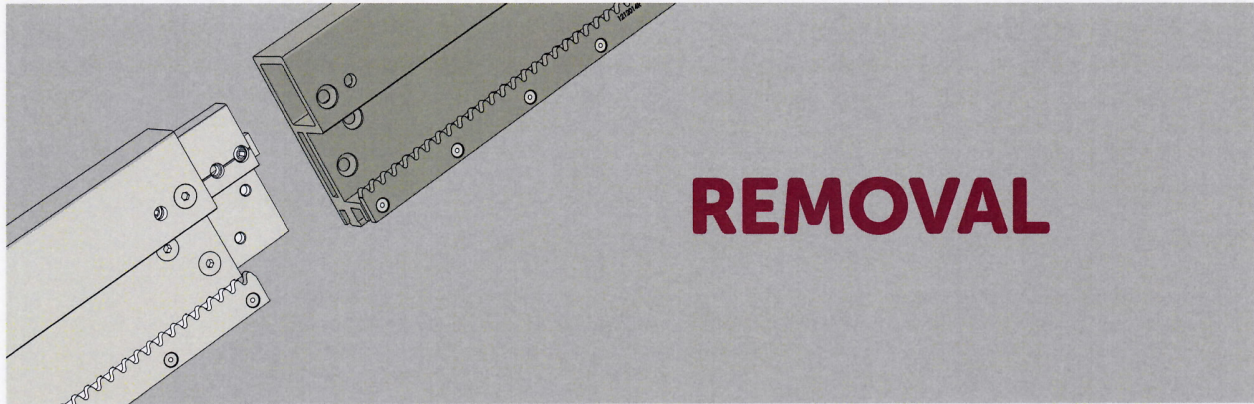


8.2 FINAL CHECKS

Ensure that all warning & information labels are attached to the lift and all covers are fitted.

IMPORTANT

- ☐ **1** Demonstrate the safe use of the lift to the client.
- ☐ **2** Explain the various fault codes, the audible alarm and how client should respond to them.
- ☐ **3** Ensure that the client has, and understands the User Manual.
- ☐ **4** When required by local regulations, complete appropriate installation test & examination certificate.
- ☐ **5** Remove all debris and packaging from the work area.
- ☐ **6** Ensure that the lift, rail and work areas are left in a clean condition.
- ☐ **7** Ensure that the client has contact details for assistance.
- ☐ **8** Explain the operation of the seat arm interlocks to the customer.
- ☐ **9** Explain to the client the importance of leaving the power supply switched on, and parking on the charge stations.



- 1** Disconnect the power supply to the battery charger and/or disconnect the power supply to the control box if a power hinge is fitted.
- 2** Disconnect and remove all charge ramp assemblies and mechanical stops from the rail (5mm Allen Key). If power hinge is fitted, disconnect the motor feed wires and hinge limit switch wire.
- 3** Fit transfer rail to main rails and secure with one screw.
- 4** Remove the carriage on the transfer rail from the main rail. (Part of the rail may have to be disassembled first dependant upon type of installation).



THE CARRIAGE ASSEMBLY AND TRANSFER RAIL WEIGHS 43.4 KILOGRAMS (96 POUNDS). THE ENGINEER MUST FOLLOW SAFE HANDLING PROCEDURES TO HANDLE THIS WEIGHT.

- 5** Disconnect and remove the batteries from the carriage and isolate the terminals with insulation tape.
- 6** Remove the Rail sections and feet.
- 7** Remove all components from the premises.
- 8** Ensure that the work area is left clean and tidy.

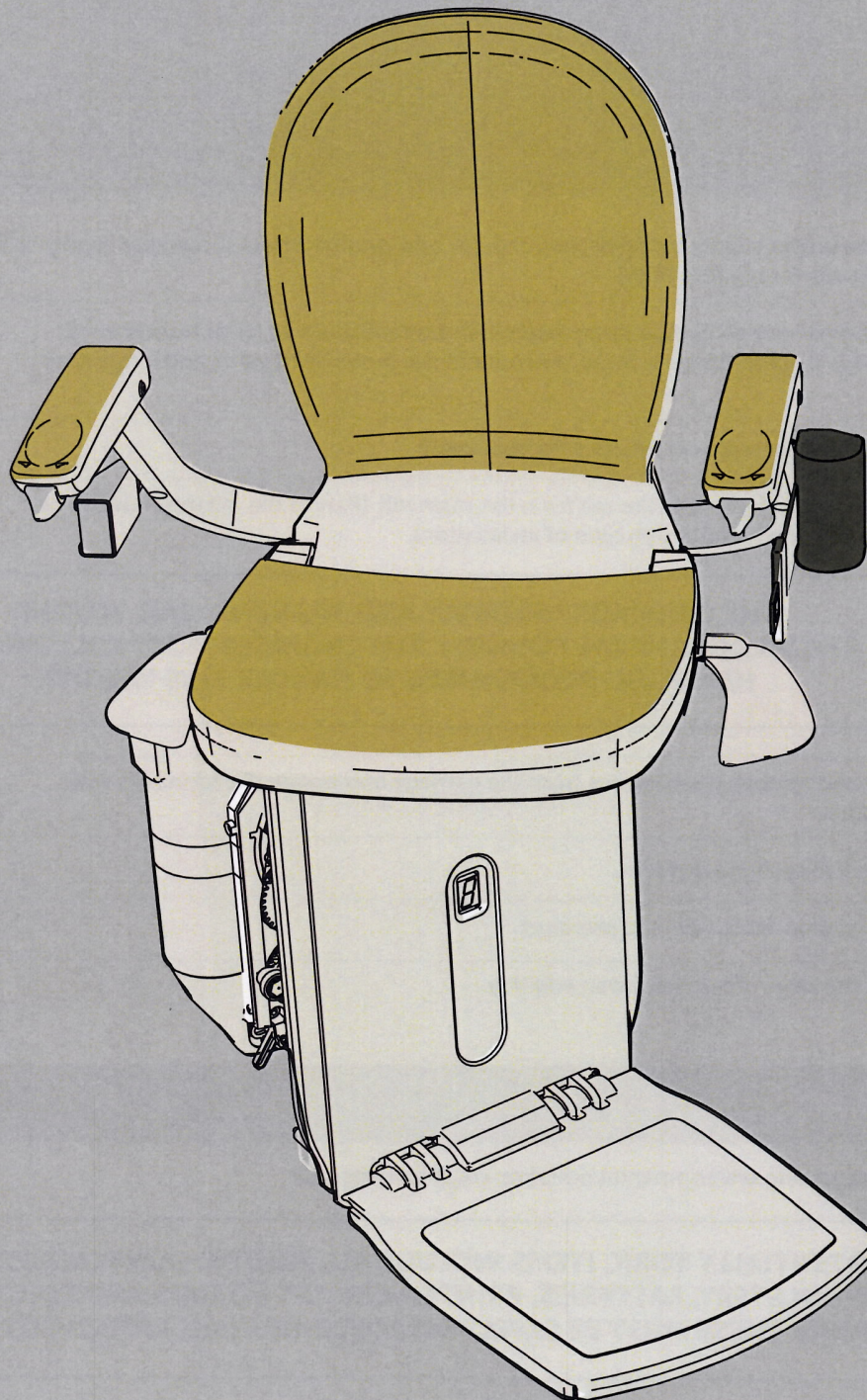
9.1 DISPOSAL

Local legislation regarding environmental pollution must be observed.



POTENTIALLY TOXIC ITEMS INCLUDE ALL PLASTIC COMPONENTS, SEAT UPHOLSTERY, BATTERIES, PRINTED CIRCUIT BOARDS AND ELECTRICAL WIRING. THESE MUST BE SAFELY DISPOSED OF IN AN APPROVED MANNER.

APPENDICES



INSTALLATION CHECKLIST

Tick the relevant boxes when the checks have been completed.

RAIL

- ☐ Check all legs are correctly positioned.
- ☐ Check all leg fixing screws are secure and torqued.
- ☐ Check charge points are secure and undamaged.
- ☐ Check the position of the mechanical end stops.

Lift Serial Number

SEAT

- ☐ Check swivel mechanism working correctly (where applicable).
- ☐ Remove seat and check that swivel pin securing screw is tight.
- ☐ Check arms and seat base remain in upright position when folded.
- ☐ Check arms interlock operation

CARRIAGE

- ☐ Check carriage charge plungers make equal contact with the charge plates.
- ☐ Check carriage runs freely without encountering obstructions.
- ☐ Manually test the operation of the over-speed governor.
- ☐ Test operation of all safety interlocks.
- ☐ Check all 5 P.S.E's are working correctly.
- ☐ Battery voltage satisfactory and record $V =$
- ☐ Check D.C. charge voltage satisfactory and record $V =$
- ☐ D.C. charge current satisfactory and record $mA =$

GENERAL

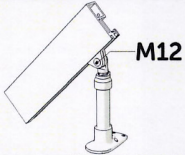
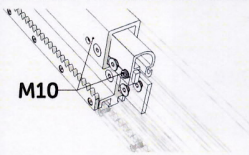
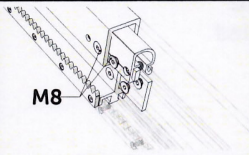
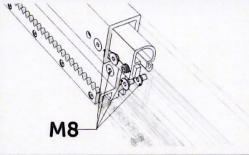
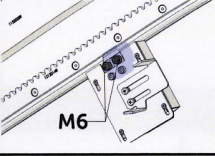
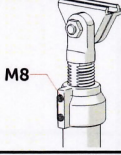
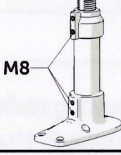
- ☐ Check all warning and information labels are fitted where necessary.
- ☐ Check operation of arm control device.
- ☐ Check operation of the remote controls.

Other Work Required or Completed

RECOMMENDED TOOL LIST

- ☐ **1** Set of insulated Screwdrivers with Flat and Pozidrive heads
- ☐ **2** 6 inch Side Cutters
- ☐ **3** Pliers
- ☐ **4** Radio Pliers
- ☐ **5** Set of metric Hexagonal keys (2.5mm – 10mm)
- ☐ **6** Pocket size spirit level
- ☐ **7** 3/8 inch Drive ratchet
- ☐ **8** 19mm x 3/8 inch drive socket or spanner
- ☐ **9** Digital Angle Finder
- ☐ **10** Digital Multi-meter
- ☐ **11** 5m Steel Measuring Tape
- ☐ **12** 3/8 inch drive Torque Wrench with suitable scale setting
- ☐ **13** Rubber Mallet
- ☐ **14** Crimping Tool
- ☐ **15** Wireless Drill

RECOMMENDED TORQUE SETTINGS

Component		Torque settings	
		Newton metres (Nm)	Foot Pounds
M12 Leg clamp fixing bolt		90	66.4
M10 Top joint box grub screw		25	18.4
M8 Pull plate countersink fixing screws		25	18.4
M8 Bottom Joint fixing screws		25	18.4
M6 Charge point bracket screws		6	4.4
M8 Leg Adjustment Grub Screw		8	5.90
M8 Leg Tube Grub Screws		10	7.38

LUBRICATION GUIDE

The rack and pinion need to be lubricated to ensure long life and use for the client.

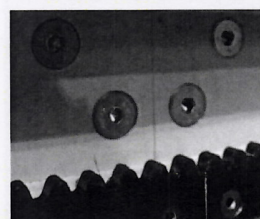
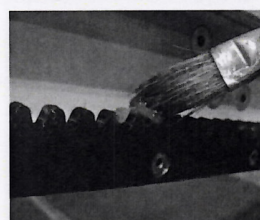
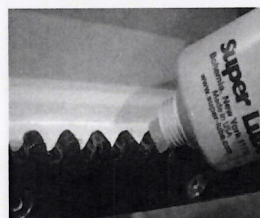
- 1 At point of install and yearly service intervals, the rack must be lubricated with the recommended lubricant.

Please ensure health and safety standards are adhered to. See note below.

- 2 Please ensure the grease is applied at regular intervals from the tube and then use a small brush to ensure all the toothed profile is evenly covered.

- 3 Ensure all rack sections, particularly joints are lubricated.

Do not apply too heavily to cause it to drop onto the clients carpet/cause stains. It is recommended that the process is carried out yearly.



Recommended Lubricants

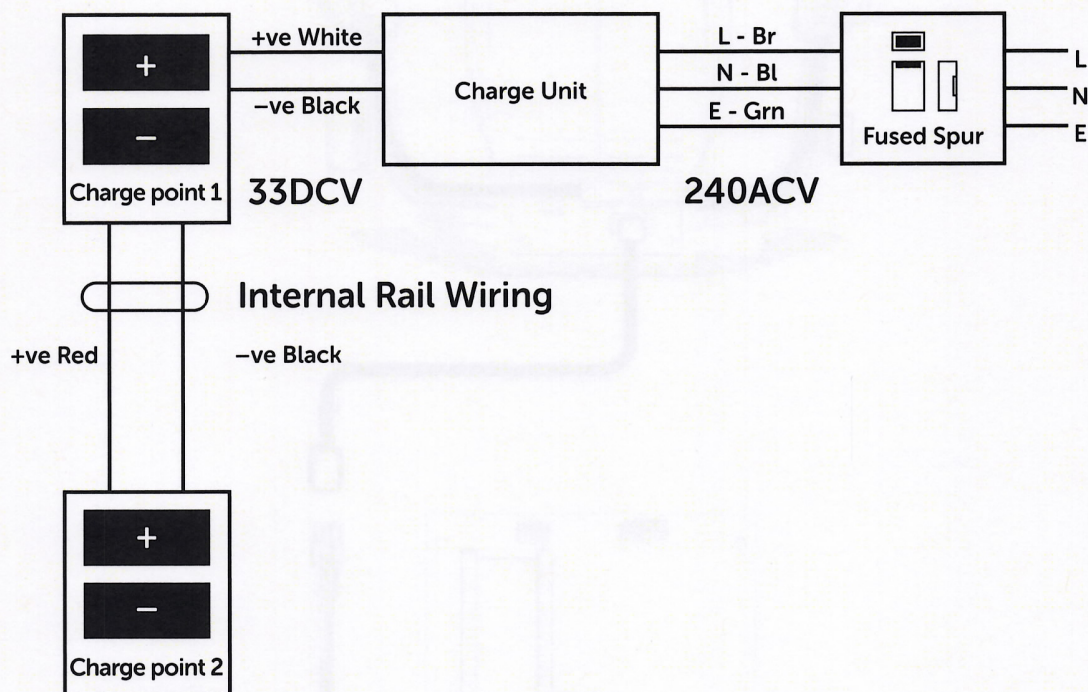
Component	Lubricant
Seat swivel pin	Superlube
Rail Rack	
Levelling Vee Wheel Rails	
Power Bogie Gear Wheel Thrust Washers	
Levelling Ball Screw	Silicon Grease



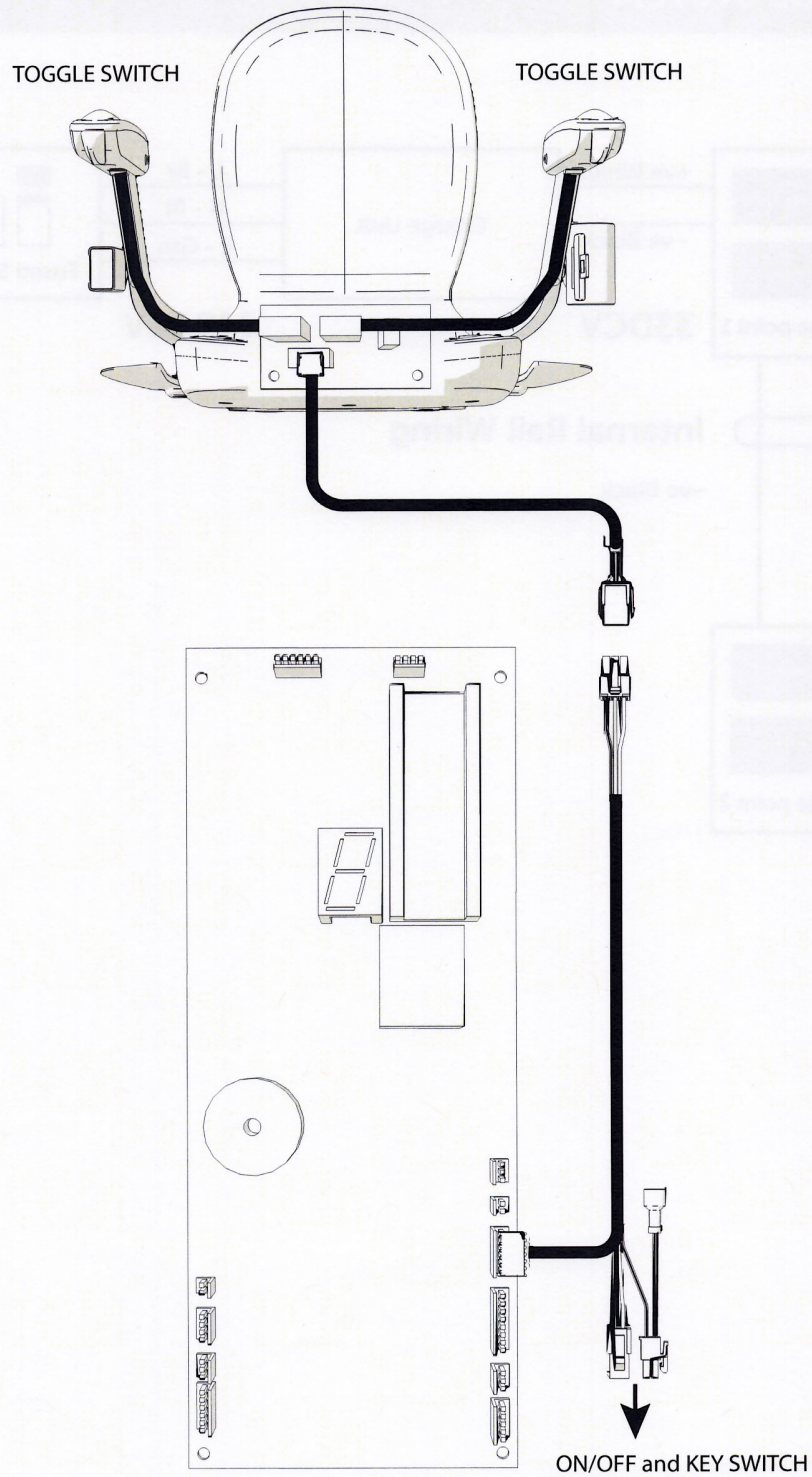
Superlube is a non-hazardous, food grade lubricant that is environmentally friendly and safe to use. Although the package contains "cautions" pertaining to the application of the product, these are required in order to meet universal government standards. Rarely, contact results in eye or skin irritation. However, common sense application procedures should be followed to reduce the likelihood of exposure.

WIRING DIAGRAMS

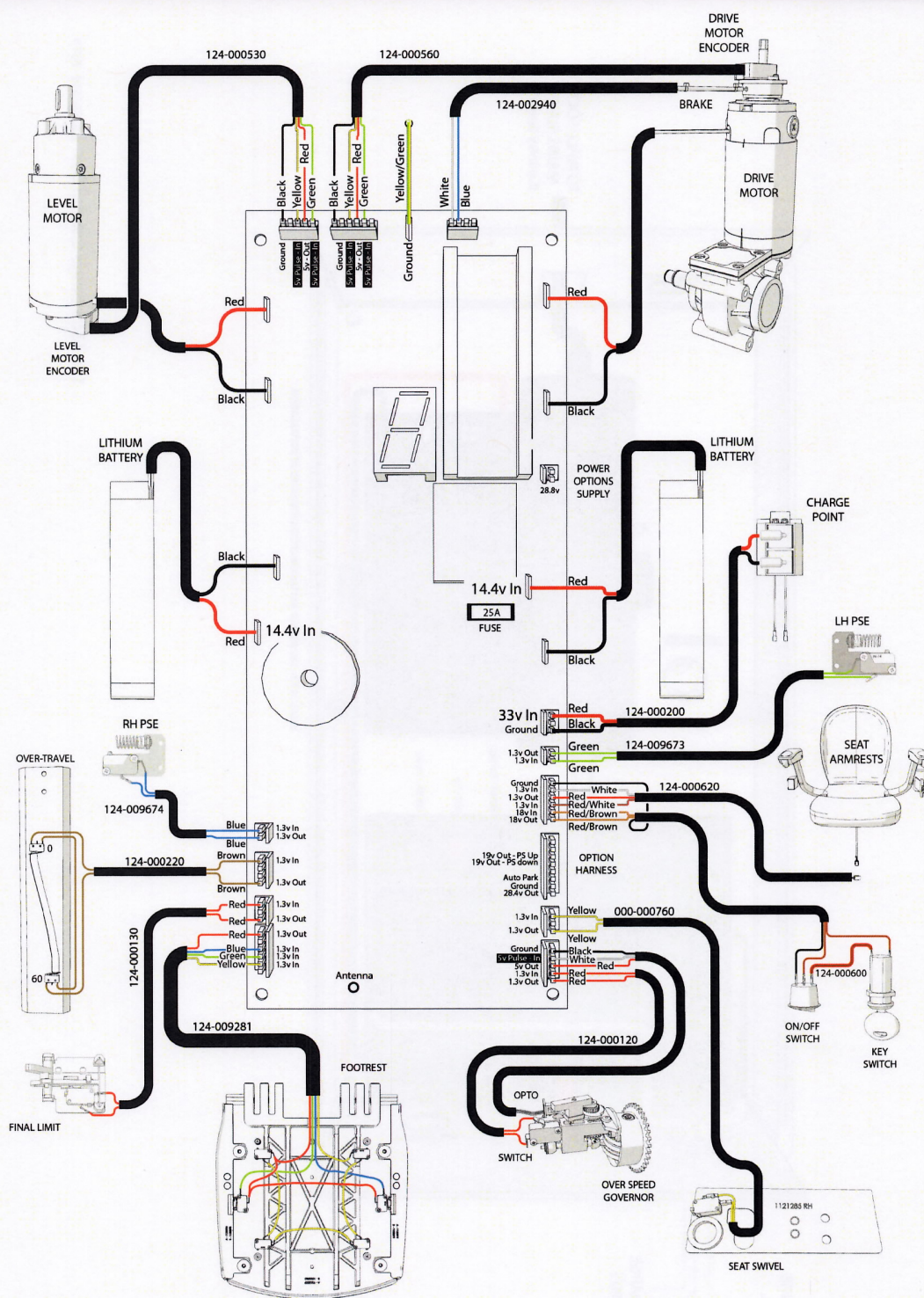
5.1 CHARGE SYSTEM



5.2 SEAT & CARRIAGE

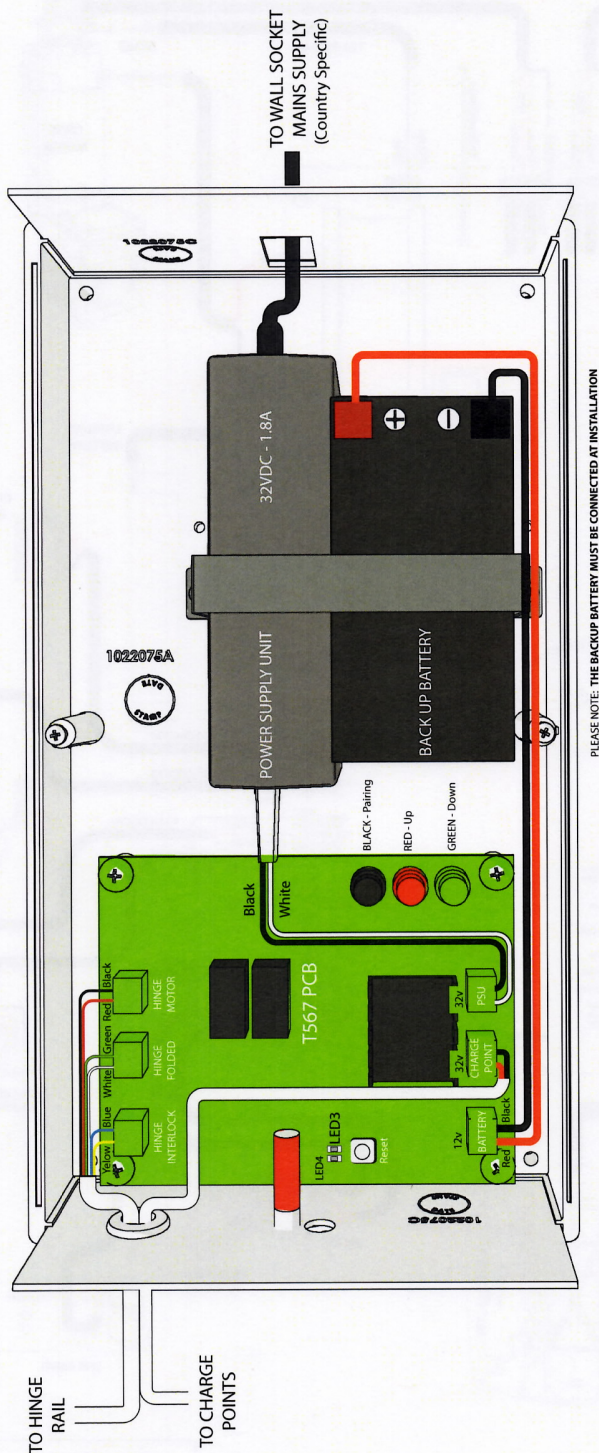


5.3 T565 WIRING DIAGRAM



T565 PCB AG2100118

5.4 HINGE WIRING



PLEASE NOTE: THE BACKUP BATTERY MUST BE CONNECTED AT INSTALLATION

180 T565 Hinge Control Box AG250519 - 0519

EXAMPLE INSTALLATION DRAWING

Run no

Client ref

Client

Region

TS85760

STEETON TRAINING ROOM

ACORN (UK)

UK

MCW: 1000mm

Rail Travel: 3.5

M1

M2

M3

M4

M5

M6

M7

M8

M9

M10

M11

M12

M13

M14

M15

M16

M17

M18

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M510

APPENDIX 6

Example Installation Drawing

Run no: TS85760	MCW: 1000mm	CLIENT'S DETAILS	Issue	Drawn By	Date	Issue / Revision Details
Client ref: STEETON TRAINING ROOM	Rail Travel: 3.5	M1: N/A M2: N/A	01	AG	21/05/19	PRODUCTION DRAWING
Client: ACORN (UK)	Page 2 of 3		02			
Region: UK	Build Sheet		03			
			04			

Part Name	Stock Number	Serial Number	Production Check	Dispatch Check
Carriage	See Carriage Table on Page One			
Seat	See Carriage Table on Page One			

Sequence Numbers	Part Name	Stock Number	QTY.	Serial Number	Bend Travel	Rail Length	Production Check	Dispatch Check
1	Right Hand Hinge (Short)	801221105	1		1050	0		
2	38 Deg 1st VB	1130881	1		300	0		
3	5 Pitch Special (50mm)	1191382	1		0	50		
4	020 Pitches (200mm)	11913831	1		0	200		
5	90 Horiz Ext	1221051	1		500	0		
6	030 Pitches (299mm)	11913891	1		0	299		
7, 9	014 Pitches (140mm)	11915031	2		0	280		
8	34 Deg 2nd VB	1130856	1		300	0		
10	050 Pitches (499mm)	11913881	1	*CARRIAGE LOAD POINT*	0	499		

Joint Plates: 8 Sections: 10 NOTE: All EXT LRS Systems with overall rotation of 180° or more - Rail offset will be set at 210mm to allow greater adjustment on install. SPL Sections can be added between LRS Sections if required by installer.

Bottom Rail Section:	Bottom Finish: SHORT-PFH	Top Rail Section:	Top Finish: STD
----------------------	--------------------------	-------------------	-----------------

Run no: TS85760	Client ref: STEETON TRAINING ROOM	Client: ACORN (UK)	Region: UK	Icons For Information Use Only	Horizontal Bend	Vertical Bend	1st Vertical Bend	2nd Vertical Bend	Straight Rail	End Helical	Start Helical
-----------------	-----------------------------------	--------------------	------------	--------------------------------	-----------------	---------------	-------------------	-------------------	---------------	-------------	---------------

Run no:	TS85760		
Client ref:	STEETON TRAINING ROOM		
Client:	ACORN (UK)	Page: 3 of 3	
Region:	UK	Leg Sheet	

		Leg Dim	Leg Type	Stock Number
1	A	265	221 Leg	11915101
2	B	288	282 Leg	11915111
3	C	223	221 Leg	11915101
4	D	223	221 Leg	11915101
5	E	223	221 Leg	11915101
6	F	248	221 Leg	11915101
7	G	145	125 Leg	1222006
8	H		0	0
9	J		0	0
10	K		0	0
11	L		0	0
12	M		0	0
13	N		0	0
14	P		0	0
15	Q		0	0
16	R		0	0
17	S		0	0
18	T		0	0
19	U		0	0
20	V		0	0
21	W		0	0
22	X		0	0
23	Y		0	0
24	Z		0	0

PRODUCTION NOTE

ACORN RETAIL ORDERS ONLY - PLEASE SUPPLY
1 x 1222006 SHORT LEG CASTING KIT
6 x 11915101 STD LEG CASTING KIT
ORDER No:

REMOTE CONTROL RF SYSTEM

The RF system uses a coded communication protocol reducing interference and improving remote distance.

Every radio remote carries an individually coded number and is individually paired with the Stairlift.

RF Remote Controls

The lift can store a maximum of 8 remotes.

A new remote control can be paired to the lift using two different modes:

- 1 Setting the remote in **P1 PROGRAM MODE**
- 2 Setting the remote in **NORMAL OPERATION MODE**

Setting the remote in P1 Program Mode

With **P1** on the display, swivel the seat. The lift will display **EE**.

Press and **HOLD** the **DOWN** carriage safety edge **E4** and press **ANY** button on the remote control unit. If the lift accepts the remote the carriage will beep three times.

Put the seat back into the travel position. The display will show **P1**.

Setting the remote in normal operation

Stop the lift on any charge point, swivel the seat. The lift will display **EE**.

Press and **HOLD** the **DOWN** carriage safety edge **E4** and press **ANY** button on the remote control unit. If the lift accepts the remote the carriage will beep three times.

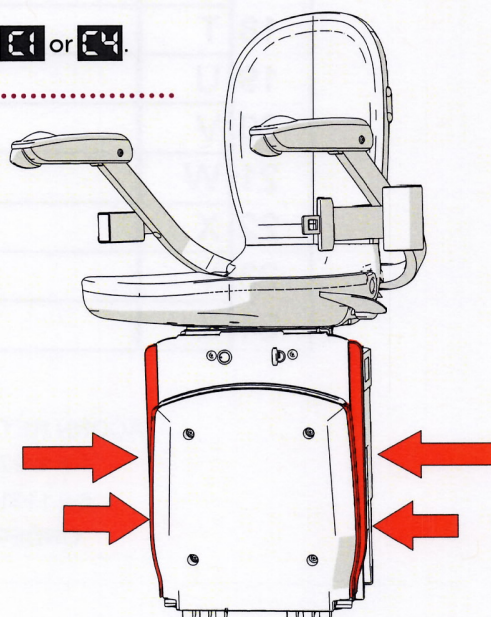
Put the seat back into the travel position. The display will show **E1** or **E4**.

Removing all remotes stored

Stop the lift on any charge point and swivel the seat.

Fold the footrest and simultaneously, press and **HOLD** both **UP/DOWN** carriage and footplate safety edges.

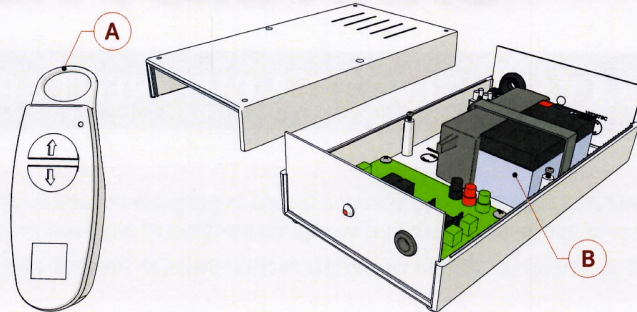
If successful the chair will beep three times.



7.1 RF SIGNAL EXTENDER - OPERATING INSTRUCTIONS

The signal extender has been designed to increase the range of the remote control where RF communication between the 180 T565 Stairlift and its remotes are affected due to thick walls between them.

The signal extender can register and ferry the signal of a maximum **8 x T565 remotes (A)**. It also uses a battery backup **(B)** to maintain its operation in the absence of mains power.



PLEASE NOTE: Only one RF Signal extender can be used to increase the range per 180 installation.

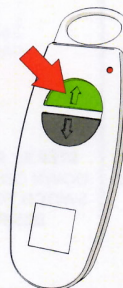
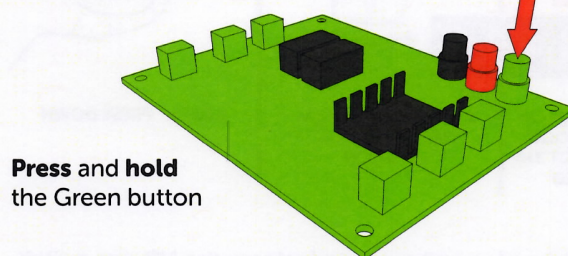
Installation

The signal extender must be installed in a dedicated power socket on a mid point on the staircase.

PLEASE NOTE: Do not use this component for any other use than intended.

Remote Registration

To register a new remote control:



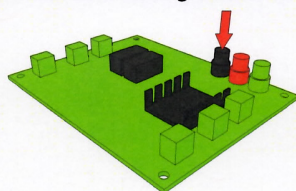
Press any button on the remote

If the remote is accepted, the Green activity LED will flash rapidly.

PLEASE NOTE: The RF Signal extender will only accept one remote per Green button press. To register multiple remotes release the Green button and start the sequence again.

Clearing the remote registrations

To clear all the remote registrations:



If the remotes have been cleared, the Red activity LED will flash rapidly.

Press and hold the black button for 5 seconds

Testing the signal extender operation

If the RF Signal extender is transmitting a registered remote, the Red power LED will flash.

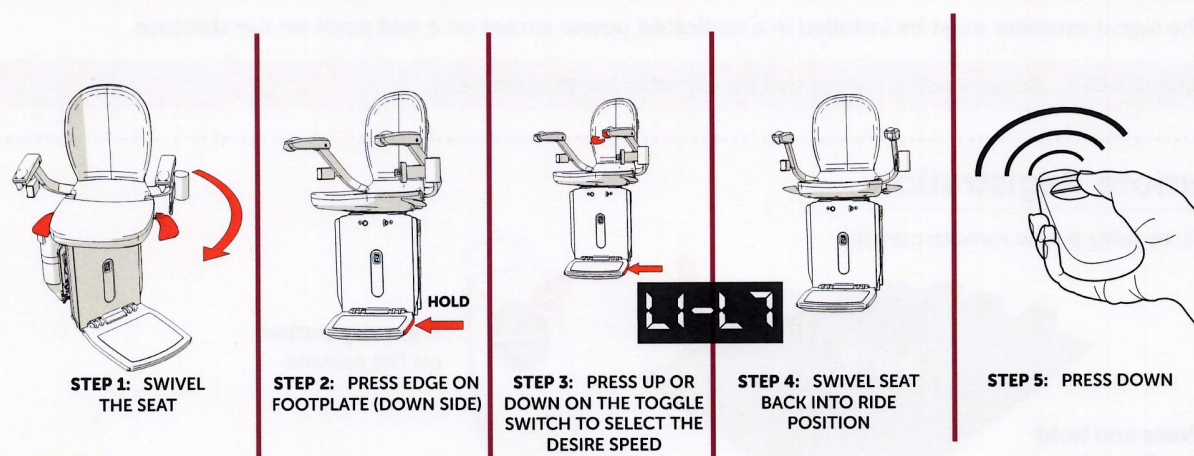
CHANGES / ALTERATIONS

8.1 CHANGING TO A DIFFERENT SPEED AFTER PROGRAMMING

PLEASE NOTE: Every speed selected in program mode creates a section in the memory. After programming is complete, you can change the speed selected in any section to a different speed.
If you need to change where the section starts or finishes a full reprogramming of the rail is required.

Move the carriage to the section that requires the speed alteration and stop.

PLEASE NOTE: Changing the speed in a specific point will automatically modify the speed in the whole section.



Swivel the seat, press and **HOLD** the **DOWN footplate** safety edge and press and release the **UP** arm switch.

The lift will display the speed programmed at that point.

Use the arm toggle switch to select the new L speed. Put the seat back to the ride position.

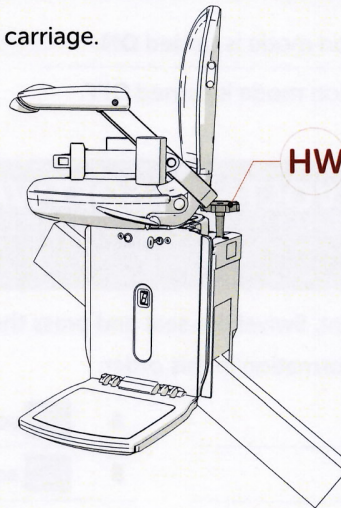
Press the **DOWN** button on the RF remote control once to accept the new speed.

The lift will beep twice to confirm acceptance and return to normal operation displaying **RI**.

8.2 SETTING A NEW LEVEL REFERENCE AFTER PROGRAMMING

Away from the parking charge point, swivel the seat, press and **HOLD** the **DOWN footplate** safety edge and press and release the **UP** arm switch. The display will show the speed programmed at that point.

Using the hand winder wheel, level the carriage.



Use the arm toggle switch to select **L9** on the display and return the seat to the travel position.

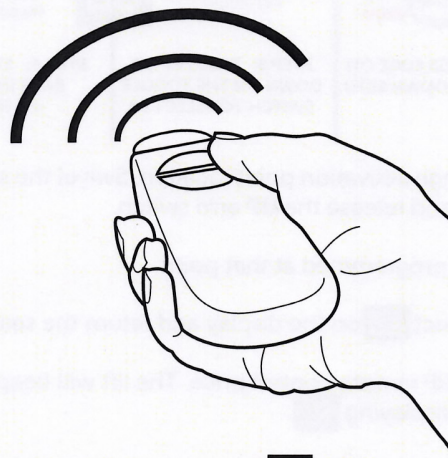
Press the **DOWN** button on the RF remote control once. The lift will beep twice to confirm acceptance and will return to normal operation displaying **R1**.

8.3 CHANGING THE VOLUME ON BEEPER

Ensure the carriage is **AWAY** from the charge point.

Swivel the seat. The display will show **EE**.

As the beeper is sounding, utilise the up and down buttons on the remote control to set the desired volume.



Put the seat back to the ride position. The display will show **R1**.

8.4 TURNING HIBERNATION MODE ON/OFF

Stop the lift on any charge point and swivel the seat, the lift will display **EE**.

Press and **HOLD** the **DOWN** footplate safety edge and press and release the **UP** arm switch.

- The lift will beep **ONCE** if hibernation mode is turned **ON**.
- The lift will beep **TWICE** if hibernation mode is turned **OFF**.

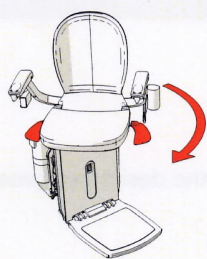
8.5 READING BATTERY VOLTAGE, SOFTWARE VERSION AND SERIAL NUMBER

Stop the lift away from the charge point. Swivel the seat and press the **UNDER** footplate safety edge.

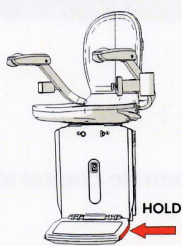
The display will indicate the below information in this order:

- | | |
|-----------------------------|-----------------------------|
| 1 Left battery | 4 U2 software |
| 2 Right battery | 5 U8 software |
| 3 U1 software | 6 PCB serial number |

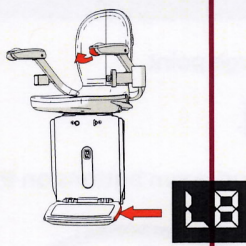
8.6 SETTING A NEW HINGE ACTIVATION POINT AFTER PROGRAMMING



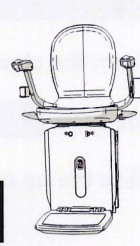
STEP 1: SWIVEL THE SEAT



STEP 2: PRESS EDGE ON FOOTPLATE (DOWN SIDE)



STEP 3: PRESS UP OR DOWN ON THE TOGGLE SWITCH TO SELECT L8



STEP 4: SWIVEL SEAT BACK INTO RIDE POSITION



STEP 5: PRESS DOWN

Place the carriage at the new hinge activation point location. Swivel the seat, press and **HOLD** the **DOWN** footplate safety edge and press and release the **UP** arm switch.

The display will show the speed programmed at that point.

Use the arm toggle switch to select **L8** on the display and return the seat to the travel position.

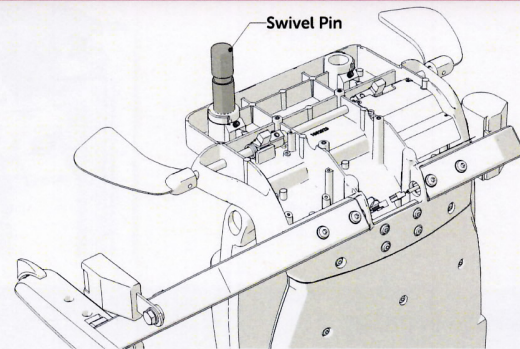
Press the **DOWN** button on the RF remote control once. The lift will beep twice to confirm acceptance and will return to normal operation displaying **A1**.

The new hinge activation point is now set.

RATIONALISATION PROCEDURES

9.1 CHANGING THE HAND OF THE SEAT

The below image shows a Right-handed Seat, this can be distinguished by position of the Swivel Pin being on the left, when viewing the seat from the base.

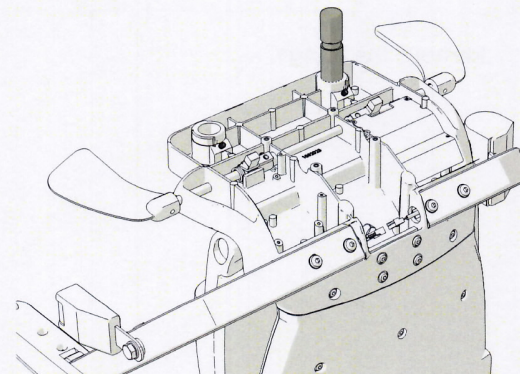
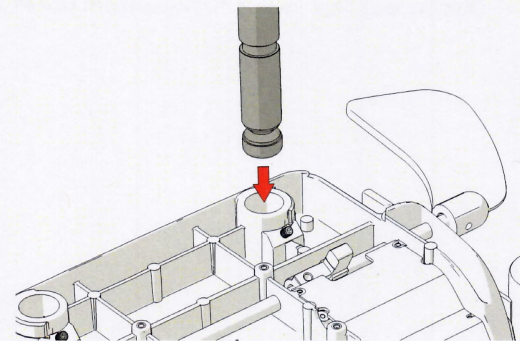
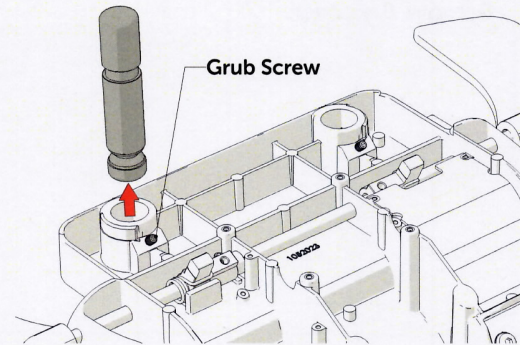


In order to change the hand of the seat the below changes must be implemented.

- 1 Remove the grub screw securing the Swivel Pin in position and remove the shaft once loosened.
- 2 Position the swivel pin in the opposite side of the base casting and secure in with the pre assembled PATCHED grub screw using, ensuring there is no movement in the pin.

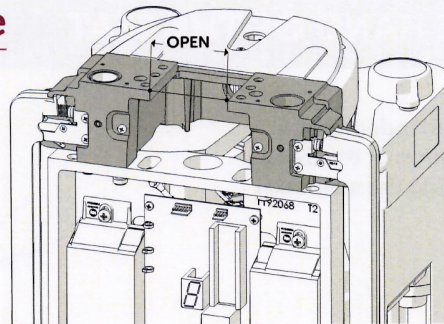
PLEASE NOTE: If patched bolt is not present, Use Loctite 243 and secure in position

- 3 The lift has now been changed to a Left Handed seat.
- 4 Place seat on carriage and check to see if the swivel release operates freely and locks correctly.



9.2 FITTING A POWERED SWIVEL KIT TO A STANDARD CARRIAGE

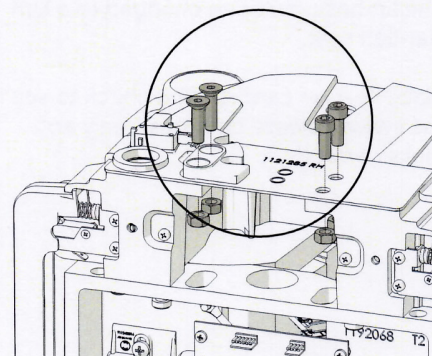
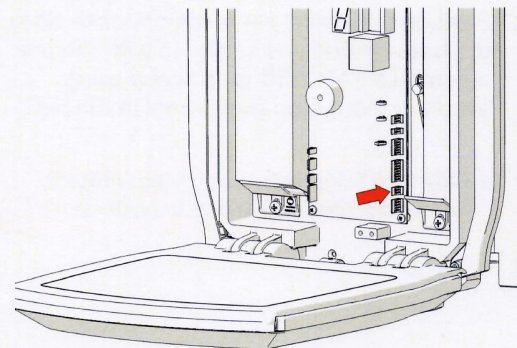
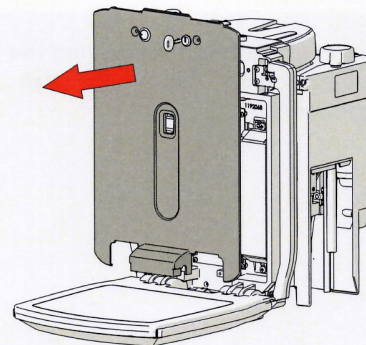
Upgrading The Carriage



PLEASE NOTE: To upgrade a lift to a 490 Powered Swivel, the carriage must have the new type of chassis fitted.

Remove in order:

- 1 Remove the cover.
- 2 Disconnect seat switch harness from the PCB.
- 3 Remove the fixings.



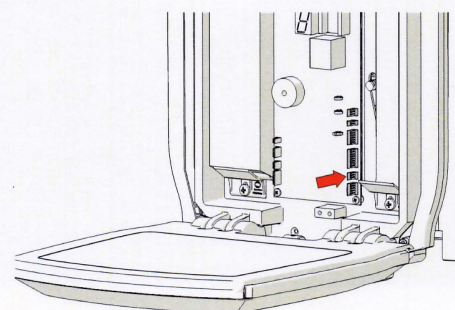
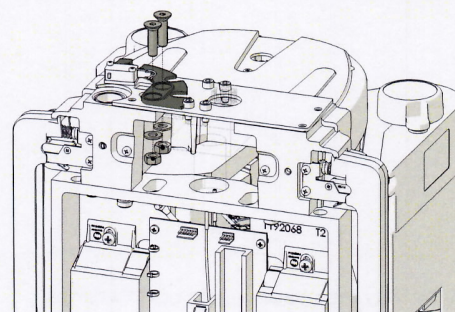
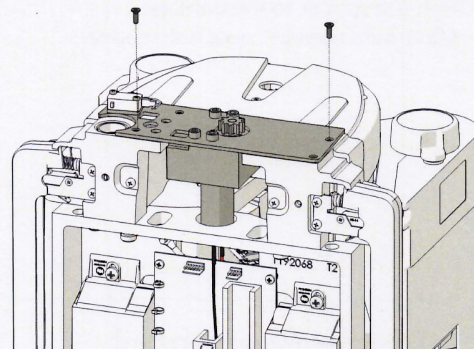
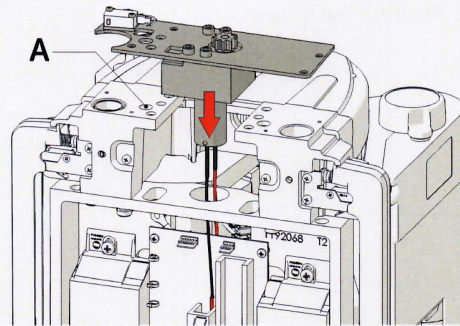
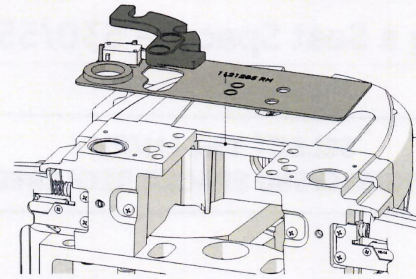
- 4 Remove the quadrant and cover with the seat microswitch still attached.

- 5 Position the powered swivel unit feeding the switch swivel harness through the hole (A)

- 6 Affix the plate to the carriage using countersinks

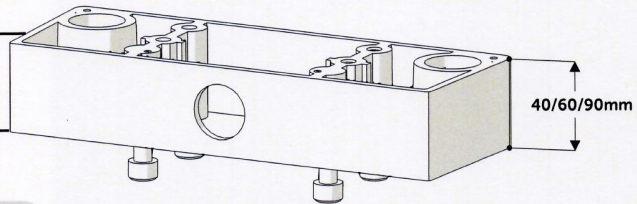
- 7 Position and secure the quadrant to the carriage using 30mm bolts

- 8 Connect the seat swivel microswitch to PCB

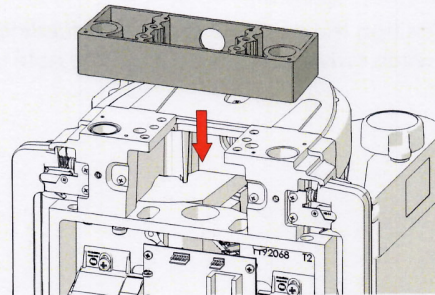


Fitting a Seat Spacer - 530/550/580

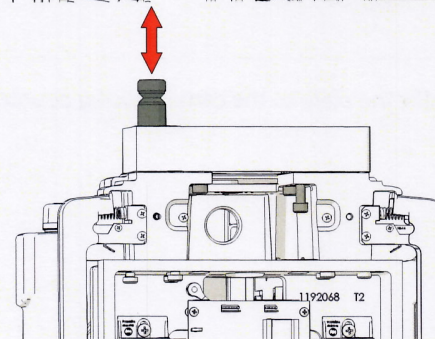
**SELECT THE LH/RH -
530/550/580 SPACER REQUIRED**



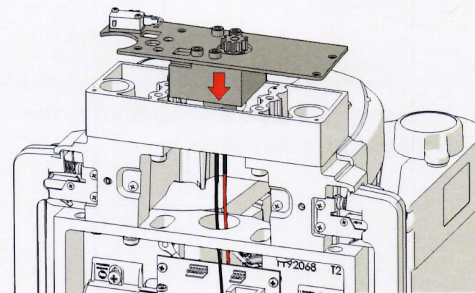
1 Position the spacer.



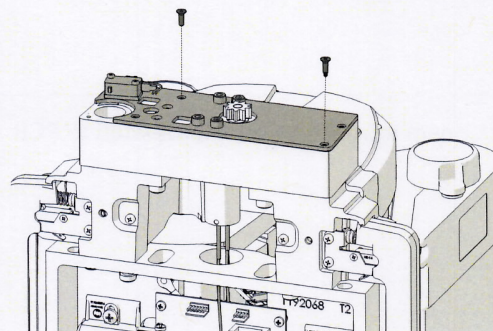
2 Bolt the spacer to the carriage.
Make sure the seat post hole is clear.



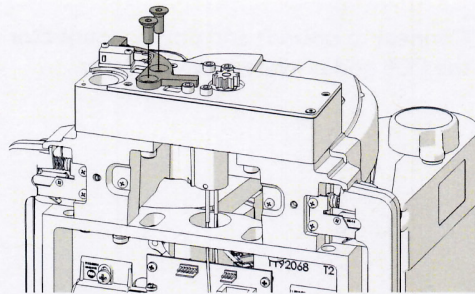
3 Position the powered swivel unit.



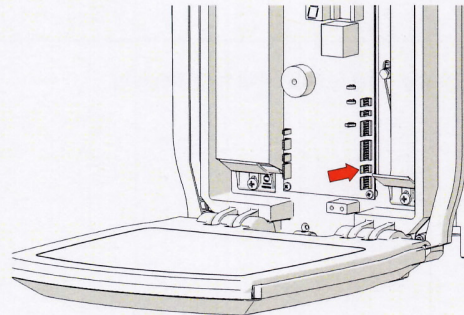
4 Affix it to the spacer using countersinks.



- 5 Position and bolt the quadrant to the carriage using 20mm bolts.

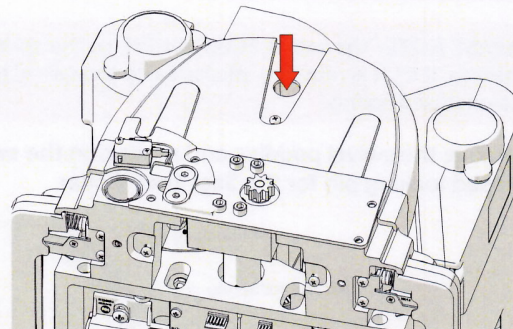


- 6 Connect the seat swivel microswitch to the PCB.

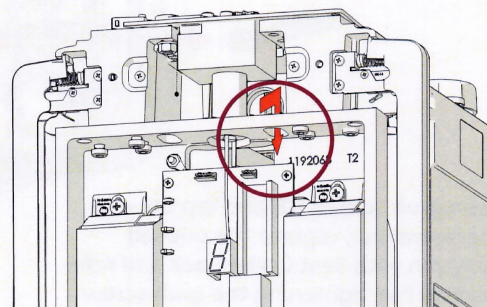


Fitting the Powered Options Harness to the Carriage

- 1 Insert powered option harness through the hole.

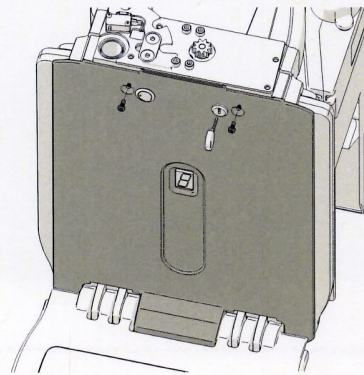
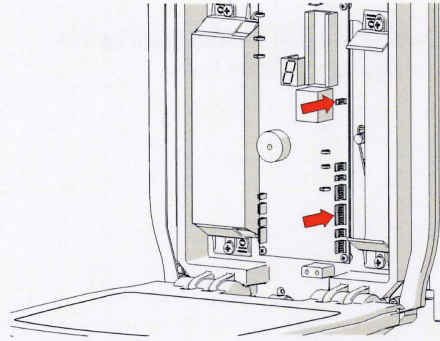


- 2 Follow the arrow.



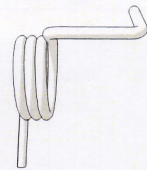
- 3 Connect to options and power connector on the PCB and powered swivel motor.

- 4 Replace and fasten the front cover.

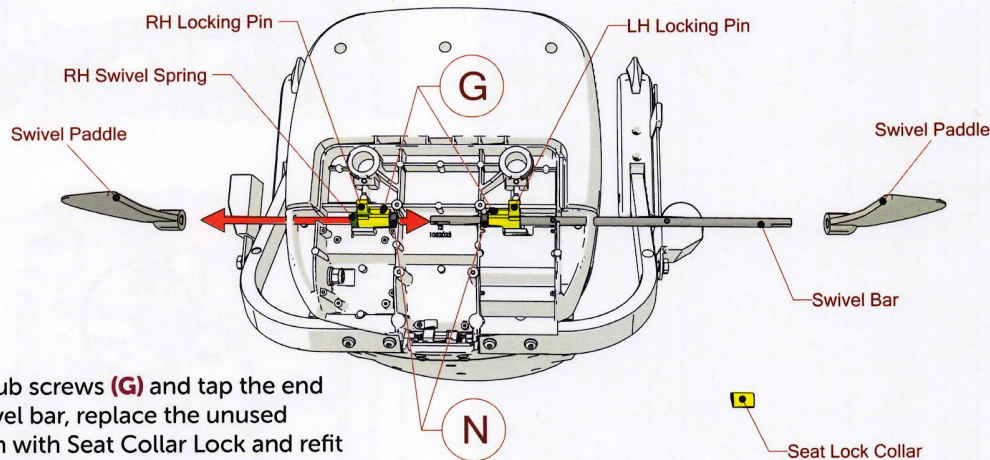


Upgrading The Seat

PLEASE NOTE: The seat is fitted as a RH, so the spring and the swivel lock are in the correct position. If a LH is required, please swap the swivel lock position to the opposite side and fit the enclosed spring.



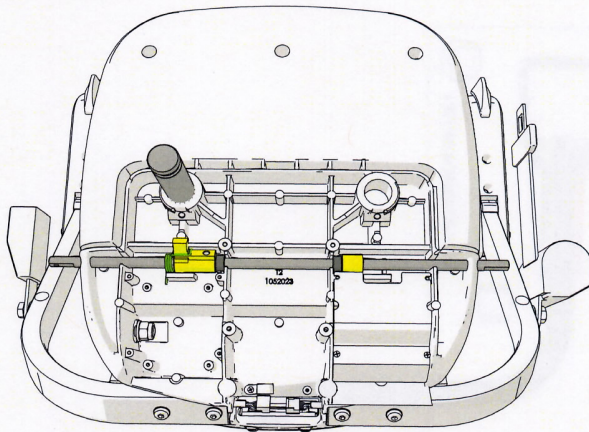
Remove the swivel paddles and reposition the swivel mechanism depending on the hand, replacing the unused locking pin for the Seat Lock Collar



Loosen grub screws (G) and tap the end of the swivel bar, replace the unused locking pin with Seat Collar Lock and refit the swivel bar, tightening the grub screw on the remaining locking pin.

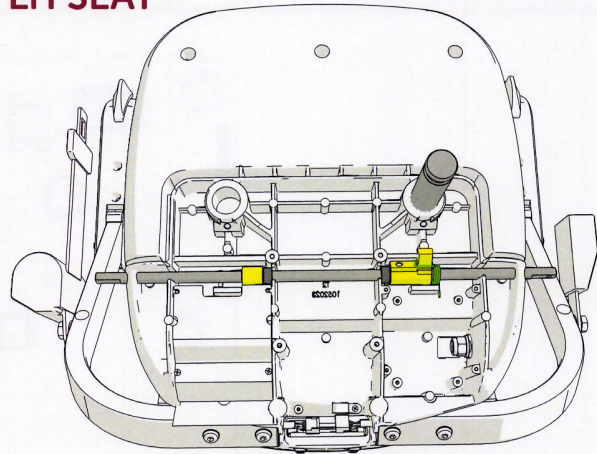
PLEASE NOTE: Ensure that the locking pin is under pressure and springs back after rotating the swivel bar.

RH SEAT



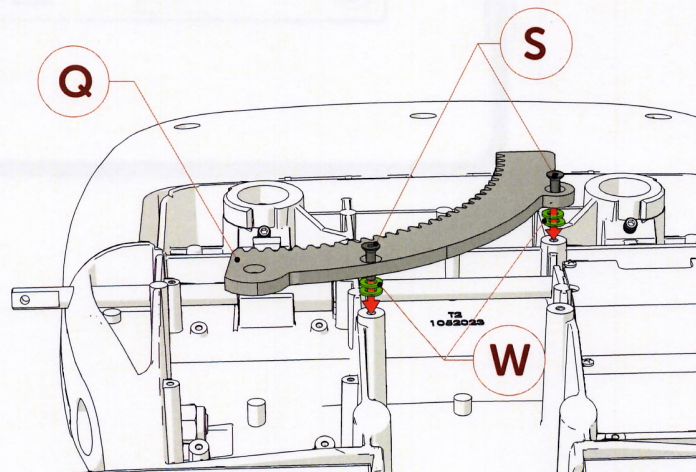
RH unit showing spring, locking pin and collar

LH SEAT



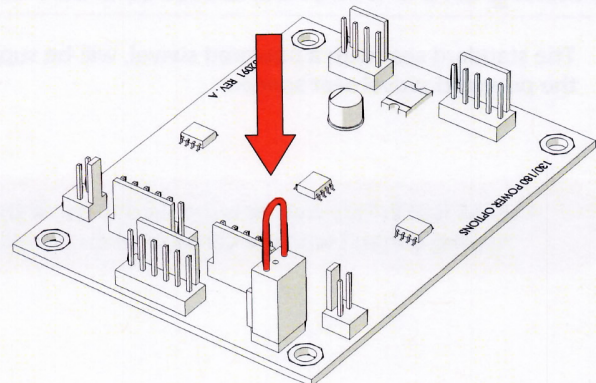
LH unit showing spring, locking pin and collar

Fix swivel gear quadrant (**Q**) in position, using the 2x M4 x 16mm long countersink screws (**S**) and the 4x M5 washers (**W**).

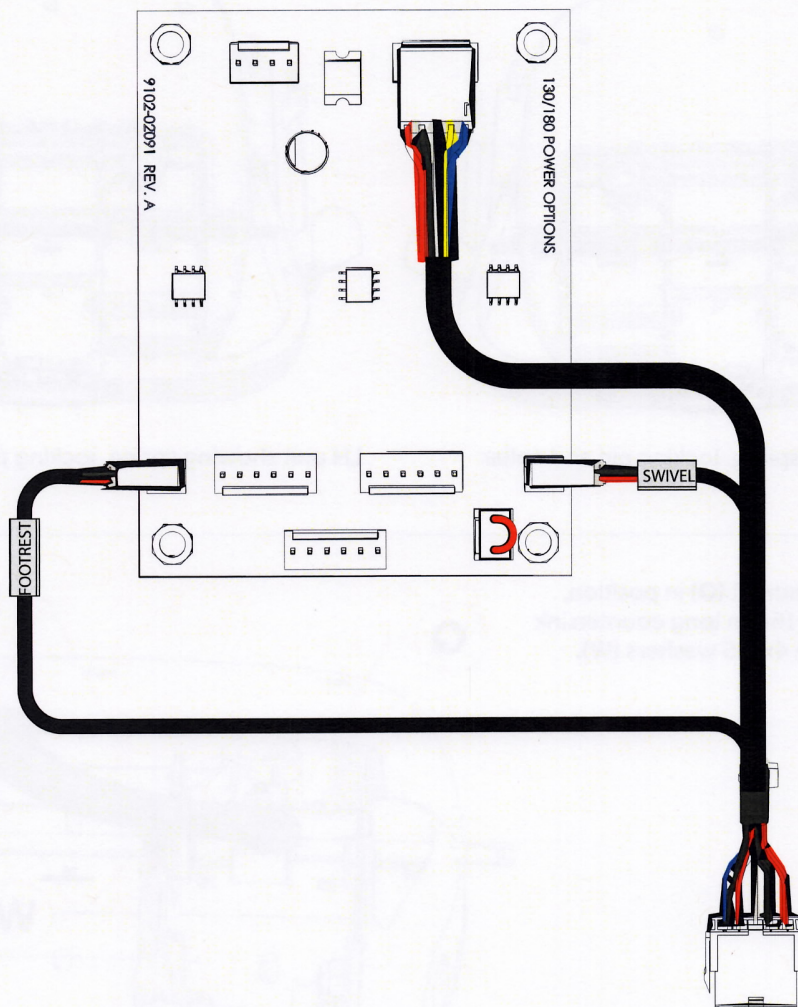


Remove the existing PCB on seat base and fix the option PCB on the side where the locking pin is located, using 4 x No4 self tapping screws. Add other connections from power option harness to PCB as shown (see wiring diagram for reference).

Place seat belt jumper on options PCB.



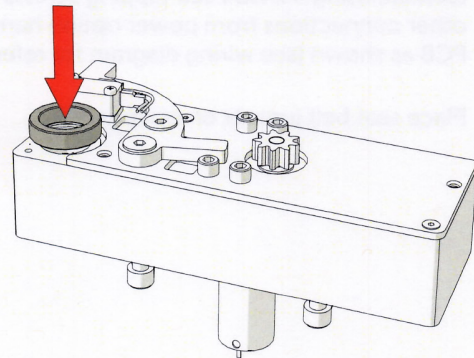
Powered Swivel Seat Wiring Diagram



Fitting the Powered Swivel Seat with Nylon Washer

The standard seat with a powered swivel, will be supplied with a 8mm washer that must be placed on the powered swivel seat spacer.

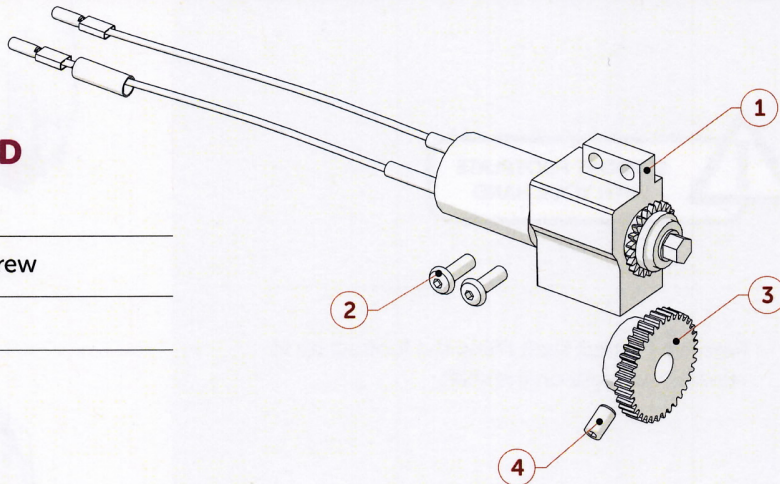
PLEASE NOTE: This washer is required to avoid the seat making contact with the carriage when swivelling.



9.3 FITTING A POWERED FOOTREST MOTOR TO A STANDARD CARRIAGE

COMPONENTS REQUIRED

- 1 Footrest Motor
- 2 2x Dome head socket 3mm Screw
- 3 Drive Pinion
- 4 Socket Set Screw

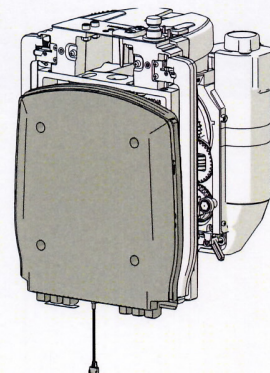
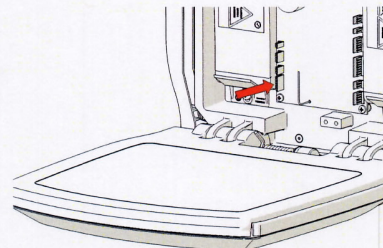
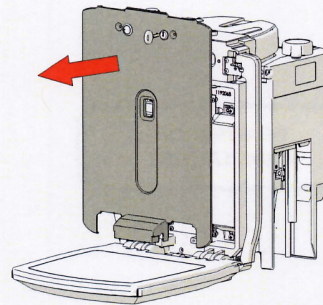


Removing the footrest

- 1 Remove the front cover.

- 2 Unplug footrest harness.

- 3 Fold the footrest UP.



- 4 Loosen 3x grub screws **1**, **2** and **3** in order.



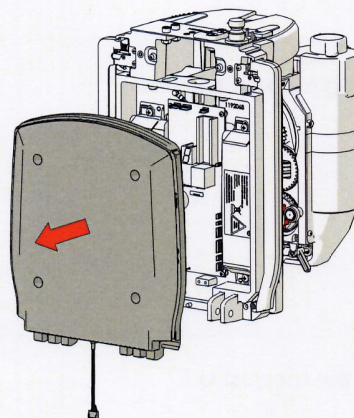
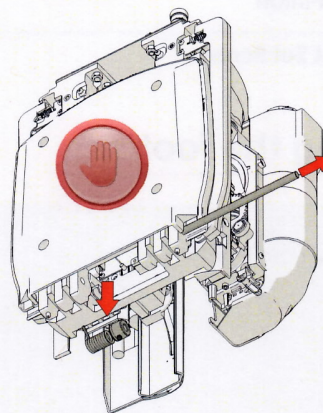
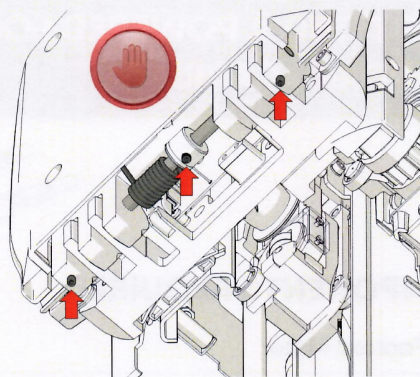
**SUPPORT FOOTPLATE
WITH YOUR HAND**

- 5 Remove footrest shaft lifting the footrest up to release its weight on the shaft.



**BE AWARE OF
ITEMS FALLING**

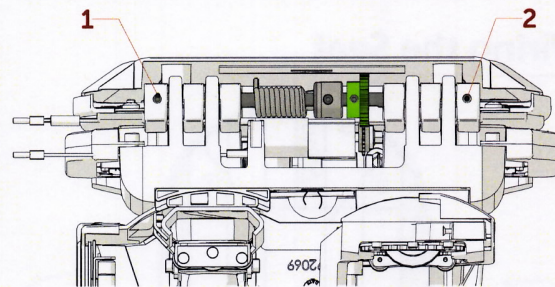
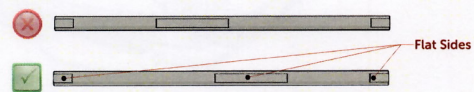
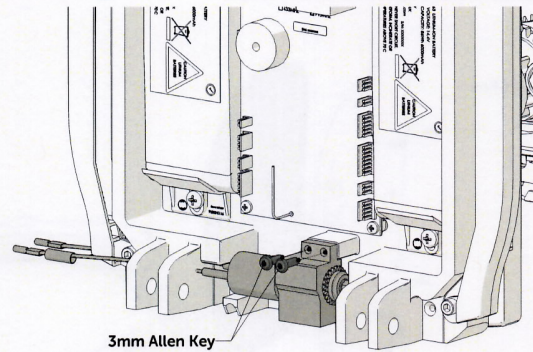
- 6 Remove the footplate.



Fitting Footrest Motor and Footplate Shaft

- 1 Position footrest motor.

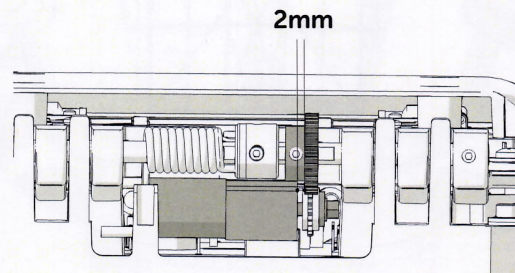
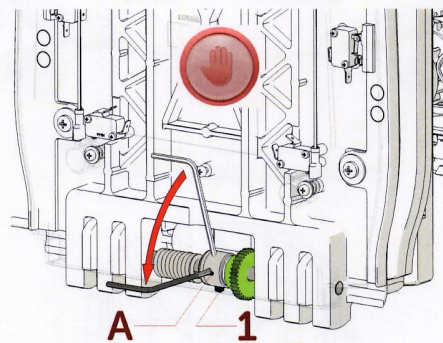
- 2 Replace footrest, insert shaft (check position) and fitting the components as shown. Tighten grub screws 1 and 2 firmly on the flat side of the shaft.



Getting Tension on the Footrest Spring

- 1 Locate the spring arm onto the chassis and locking collar. Place an allen key on hole A, rotate 90° DOWN. Tighten grub screw 1 firmly on the flat side.

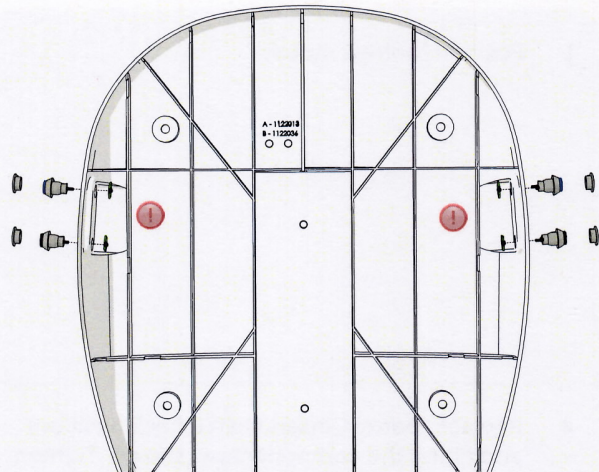
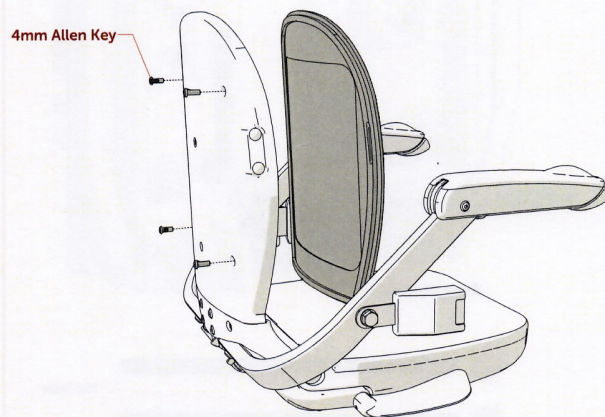
- 2 Position the drive pinion leaving a gap of 2mm against the footrest motor casing. Tighten the grub screw 3 firmly on the flat side of the shaft.



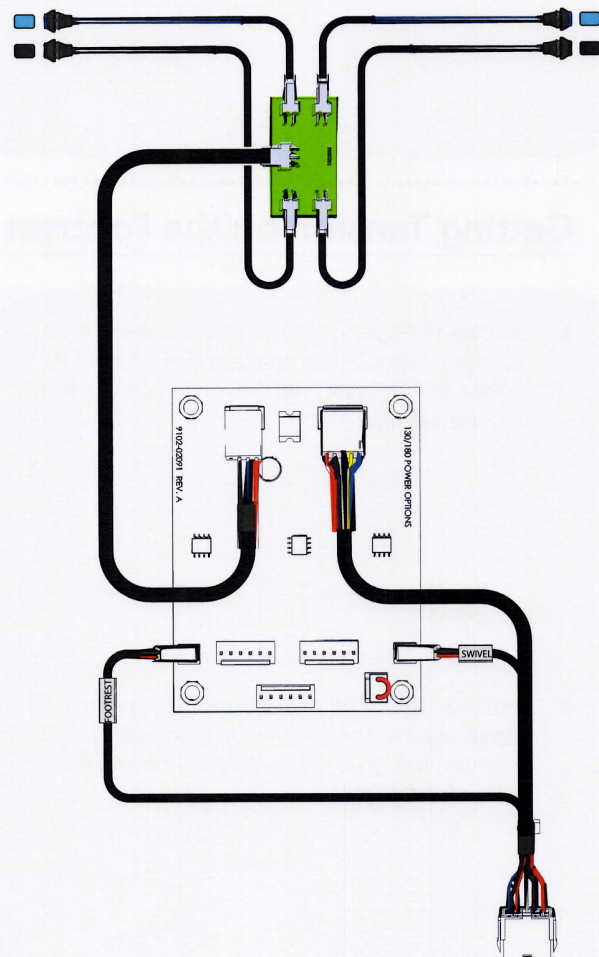
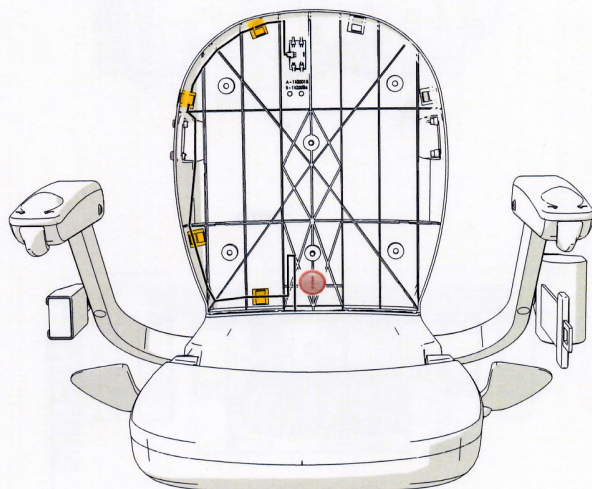
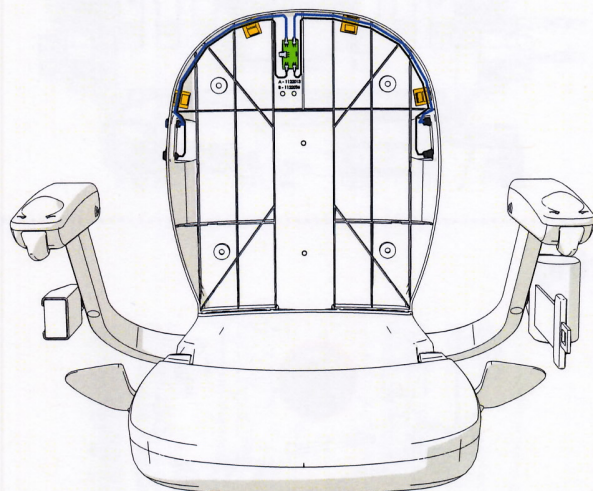
APPENDIX 9

Rationalisation Procedures

Upgrading the Seat



Wiring the Seat



WALL FIXING BRACKET KIT

Overview

The wall brackets are designed to allow fitting 180 rail systems and securing where standard leg kits cannot have floor mounted fixings, i.e. under floor heating or delicate marble floor tiles.

It is still required in **ALL** instances that the first and last legs are secured into the floor to stabilise the rail. If the floor has under floor heating, it is allowed to move the position of those first and last legs to the nearest available step.

Limitations to using the kits

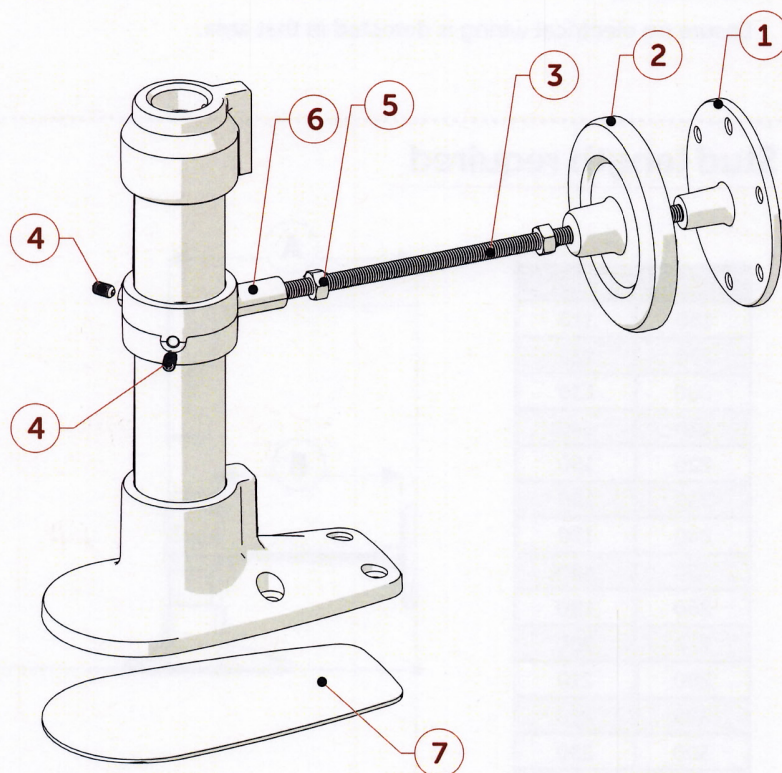
- Where a wall is not structurally sound, i.e. plasterboard.
- Where the short 180 leg kit is used or there is no space to fit the tube support casting.
- Any horizontal over-run where short legs are required.
- The nearest leg to the hinge needs to be secured to the floor at all times.

Enclosed kit

- 1 x Wall fixing mount casting
- 1 x Wall fixing mount cover
- 1 x M8 Screwed Rod
- 2 x M6 x 10 hex head set screws
- 2 x M8 nuts
- 1 x Leg tube support
- 1 x Rail foot mat (Self-adhesive)

Tools required

- 1 x Wall fixing mount casting
- 1 x Wall fixing mount cover
- 1 x M8 Screwed Rod
- 2 x M6 x 10 hex head set screws
- 1 x Hacksaw



Requirements

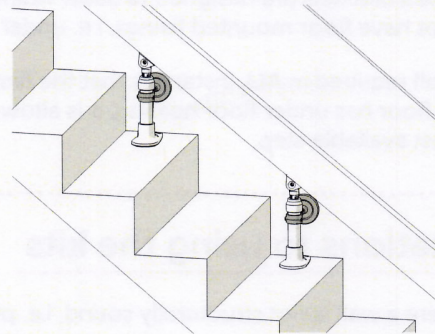
PLEASE NOTE: Before using these wall support legs ensure the wall is structurally sound and capable of supporting both the rail and the carriage with full load.

Ensure the first and last legs are screwed securely to the floor.

Every leg in between needs to have at least one wall fixing on each.

Four fixings into the wall per wall bracket as a **MINIMUM**.

Space the wall fixing legs as shown with one step clear between them as a **MAXIMUM**. ie, step 1, 3, 5, 7, 9, etc.

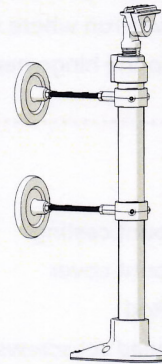


If a leg tube is over 500mm, you must use two wall bracket sets to fix the leg in its final position (see image on right).

Position the legs first, cut the studding to correct lengths as required based on rail to wall distance (see chart).

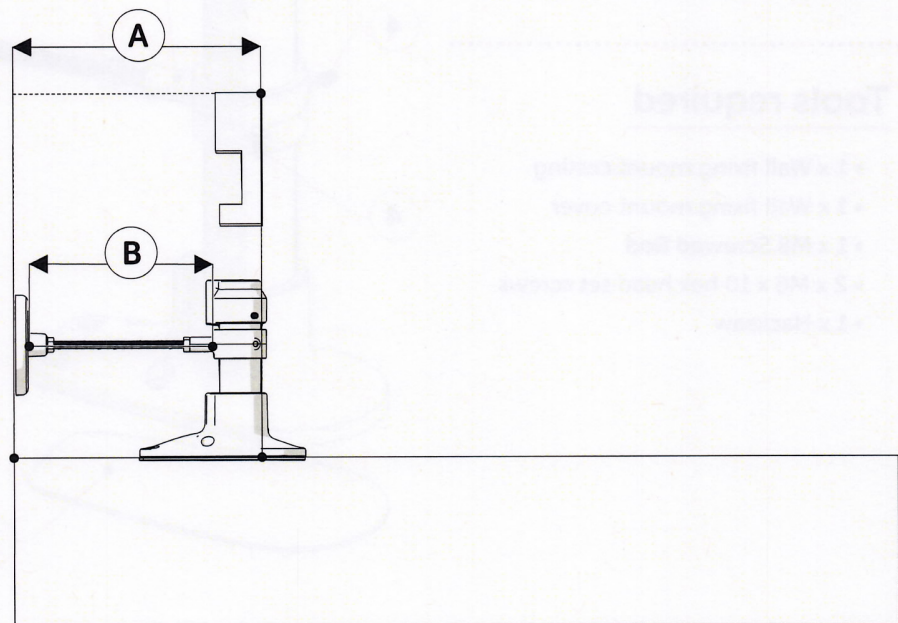
Position the wall bracket cover before securing the studding.

Ensure no electrical wiring is detected in that area.



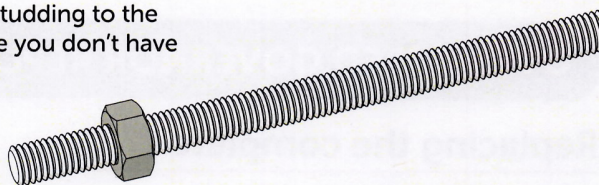
Stud length required

A (mm)	B (mm)
180	110
190	120
200	130
210	140
220	150
230	160
240	170
250	180
260	190
270	200
280	210
290	220
300	230
310	240
320	250



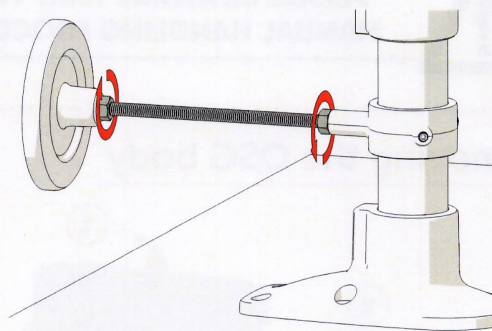
Cutting the Rod

HINT - Leave a nut on the rod before you hacksaw the studding to the correct length. The nut can then be removed and ensure you don't have difficulty screwing it into the wall castings



Fixing the Rod

Secure the studding to the wall brackets and use two nuts to lock it into position.



Wall Brackets Installation Checklist

- ☐ Sound wall construction (not plasterboard)
- ☐ No hidden electric wiring behind walls
- ☐ Feet with rubber mat secure on a flat step or floor with no gap
(This is not to be fitted to carpet flooring or steps)
- ☐ Feet fitted to every other step with wall fixing
- ☐ First and last feet in a flight are secured to the floor with fixings
- ☐ The maximum rail distance to wall is no more than 320mm
- ☐ The wall fixing mount is secured with at least four fixings to the wall
- ☐ All fixings and nuts are secure
- ☐ If a leg is taller than 500mm (19") an extra fixing kit is added to the tube
- ☐ Wall bracket covers are in position
- ☐ Nearest leg to the hinge is secured to the floor

MAINTENANCE

OVER-SPEED GOVERNOR REPLACEMENT

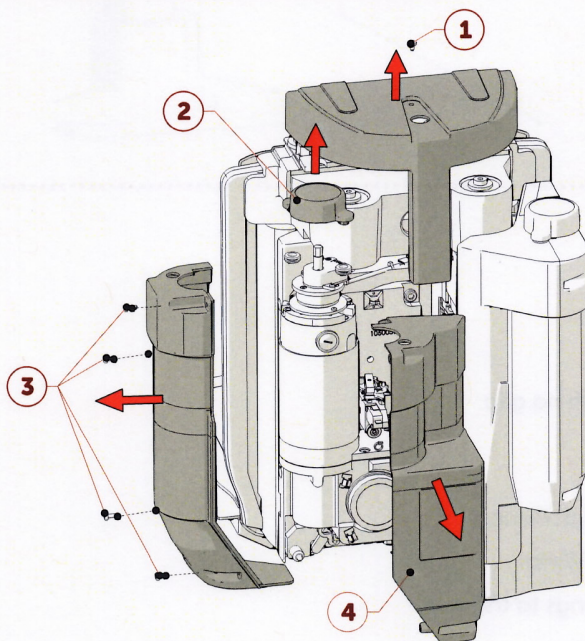
Replacing the complete OSG

Remove the carriage from the rail.



PLEASE BE AWARE THAT THE CARRIAGE IS A HEAVY OBJECT AND THAT MANUAL HANDLING PROCEDURES MUST BE FOLLOWED THROUGH OUT.

Removing the OSG body



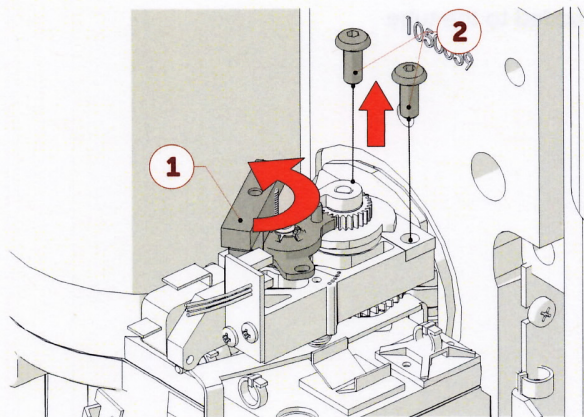
Remove in order:

- 1** Top cover
- 2** Hand winder cover
- 3** External Drive bogie cover
- 4** Internal Drive bogie cover

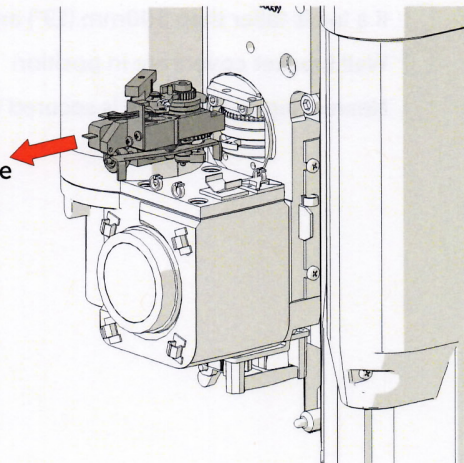
Disconnect wiring from the OSG

Rotate lever **(1)** anticlockwise to activate the OSG

Remove 2 x 3mm Dome head socket screws **(2)**

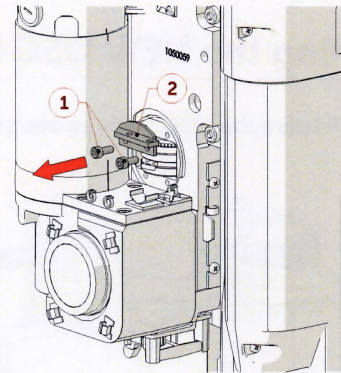


Remove the
OSG body.

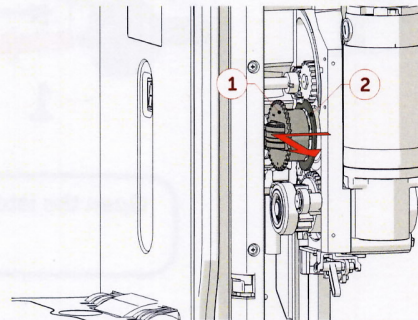


Removing the OSG Hub and Thrust Washer

- 1 Remove 2 x 4mm Allen Key screws (1) and the OSG bracket (2)



- 2 Remove the OSG hub (1) and thrust washer (2)



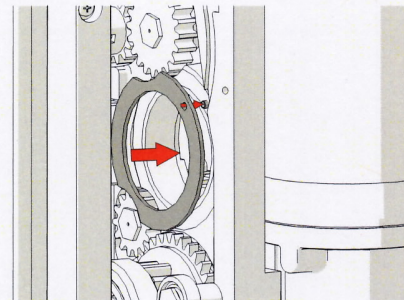
Refitting the NEW OSG Hub and Thrust Washer

- 1 Replace NEW OSG bracket (1) using 2x 4mm allen key screws (2).

Reposition thrust washer as shown.



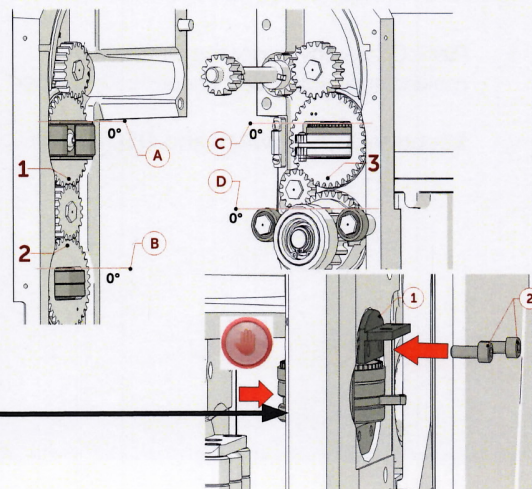
MAKE SURE THE POSITIONING HOLE LINES UP WITH THE POSITIONING PIN.



- 2 Align rollers (A) and (B). Align roller (D). Insert NEW OSG Hub C perfectly horizontal. Double check alignment using check points (1), (2) and (3).

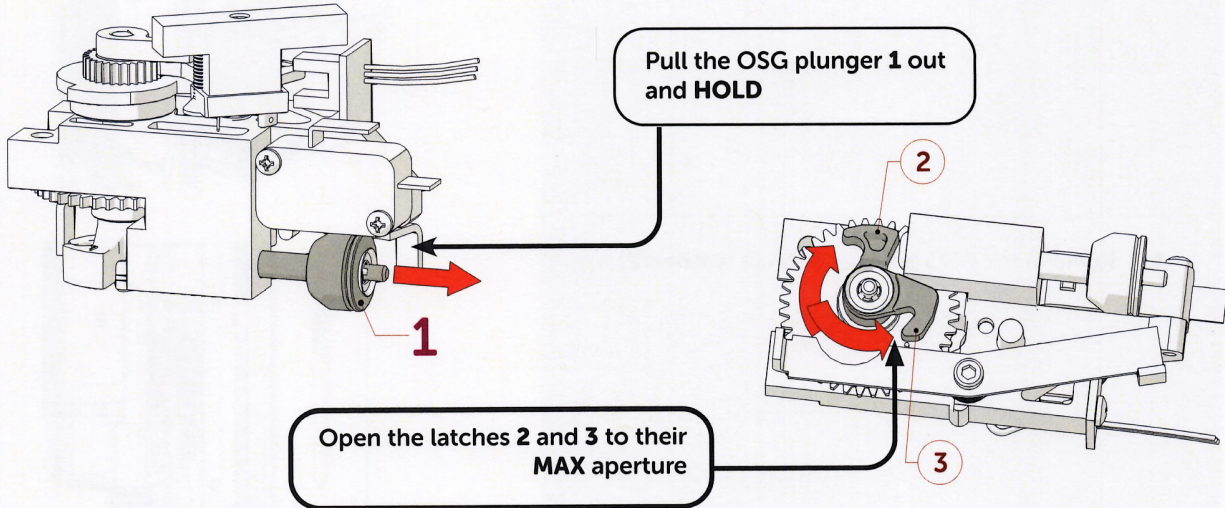


HOLD THE OSG HUB WHILST REPLACING THE OSG BRACKET TO STOP IT MOVING.

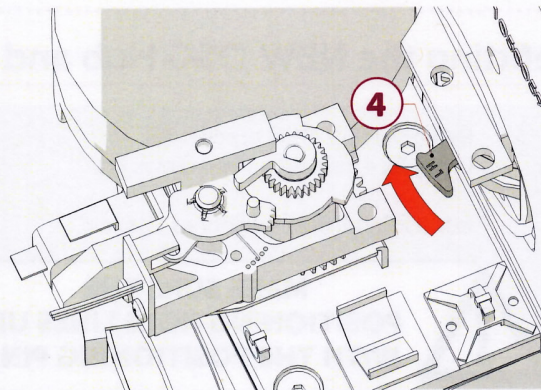


Refitting the NEW OSG body

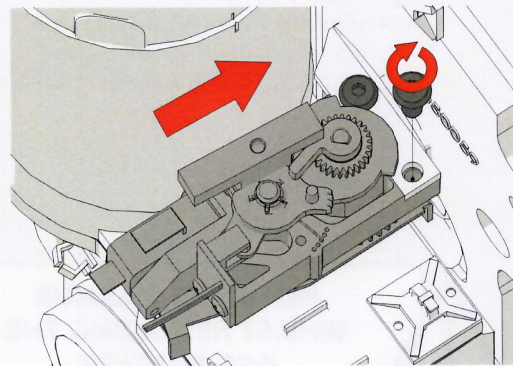
- 1 Prepare the OSG body as described below before placing it under the OSG bracket



- 2 Position latch (4) centre on the OSG Hub

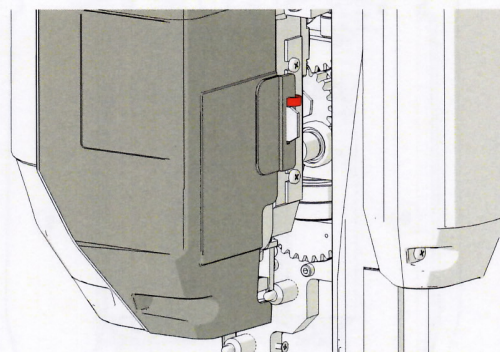
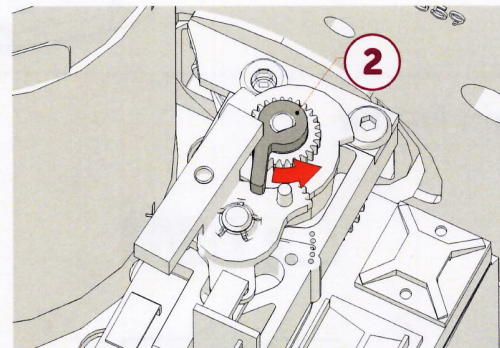
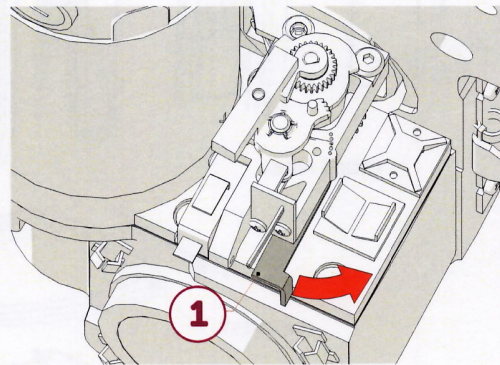
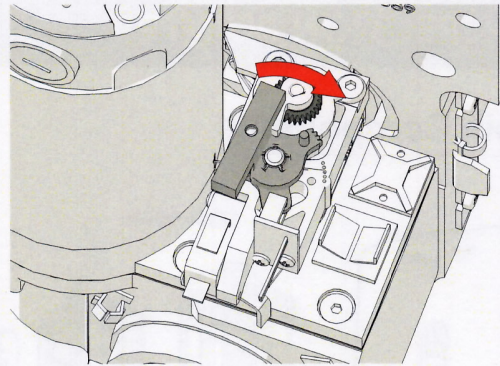


- 3 Place OSG body under the OSG bracket making sure both holes are perfectly aligned
Reconnect OSG switch and OSG sensor.



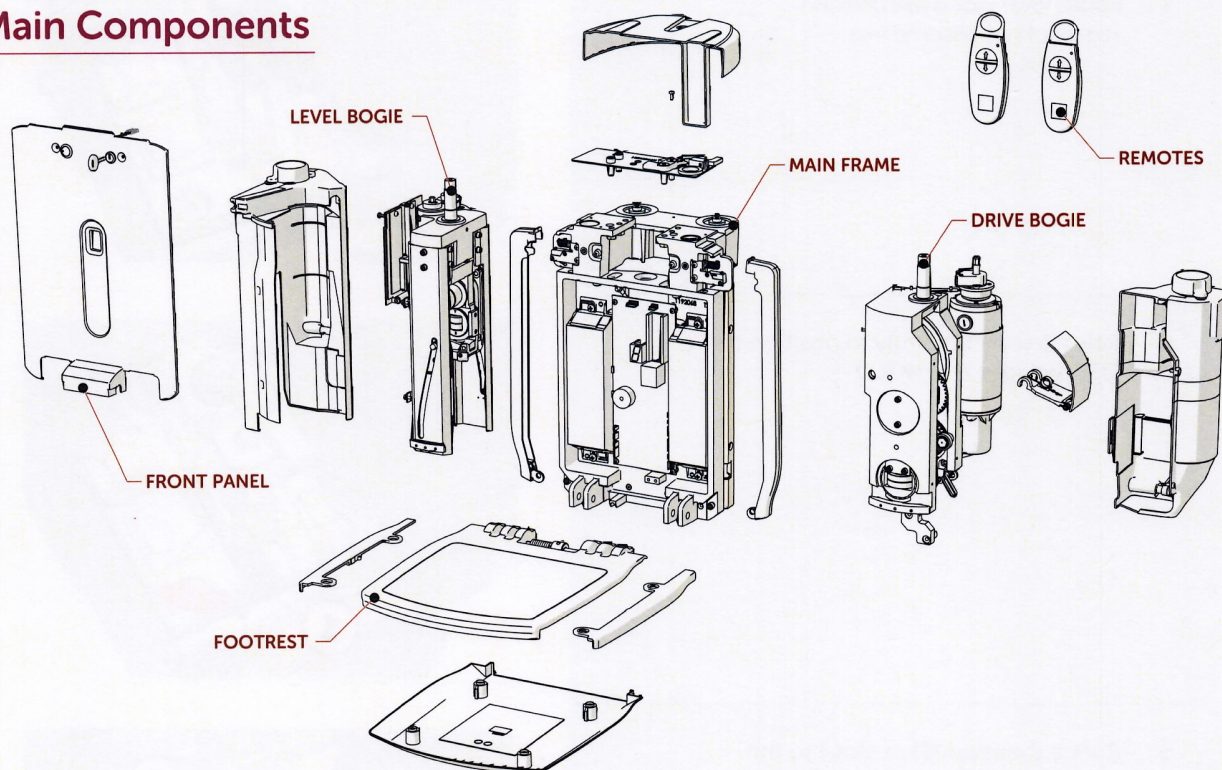
Resetting the OSG

- 1 Rotate lever clockwise until the regulator has become free.
- 2 Release lever (1) firmly to position the OSG wedges and **HOLD**
- 3 Rotate the lever (2) as close to the regulator as possible.
- 4 Re-connect wiring to the OSG and replace drive bogie covers. Pay attention to the location of the cable tie.

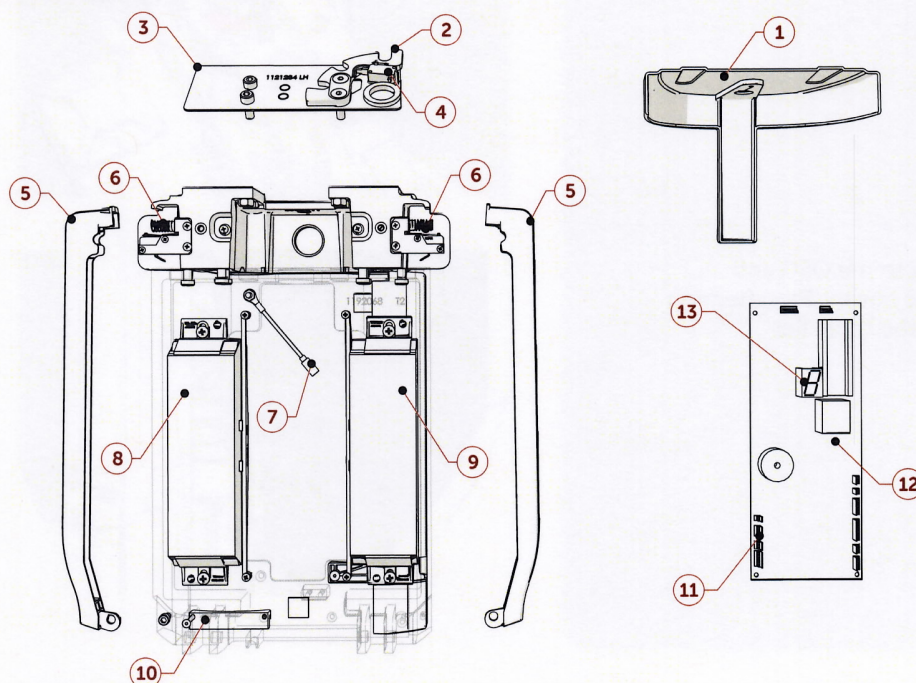


INSPECTION POINTS

Main Components



Main Frame



PART DESCRIPTION	
1	Top Cover
2	Locking Quadrant
3	Seat Spacer Cover
4	Seat Swivel Microswitch
5	All PSE (Safety Edges)
6	PSE Springs
7	Earth Wire
8	Battery
9	Battery
10	Tenon Bearing
11	Connectors
12	PCB Fuse
13	Digital Display

1 Top Cover

Check for any damage to the cover itself and the fixing to the main frame.

2 Locking Quadrant

Make sure the quadrant is in perfect condition and firmly secured by checking the 2x 13mm nuts beneath.

3 Seat Spacer Cover

Check the cover and the switch holding brackets are in good condition. The switch should have no movement within the seat spacer cover.

4 Seat Swivel Microswitch

Check the general condition of the switch, the activation plunger and its 2x connections.

SAFETY CHECK:

Rotating the seat out of its travel position should activate the seat switch. The lift should stop and the PCB should display an **E6** code.

5 All PSE Safety Edges working

Check the condition of the LH and RH carriage safety edges. Make sure the lower fixings are secured and the plastic are in good condition.

SAFETY CHECK:

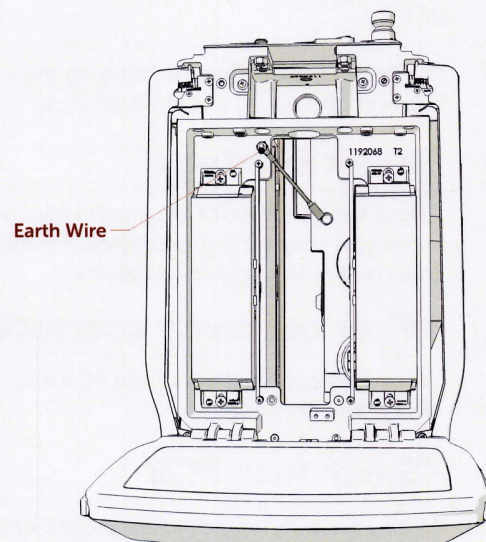
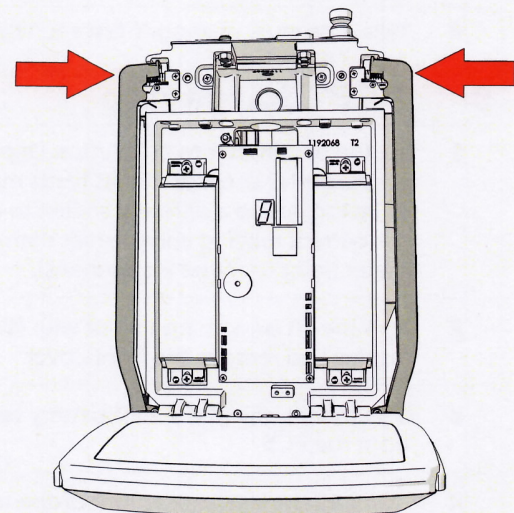
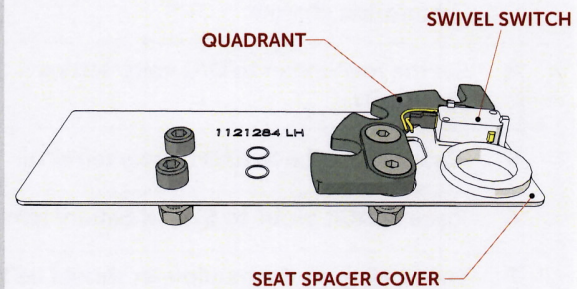
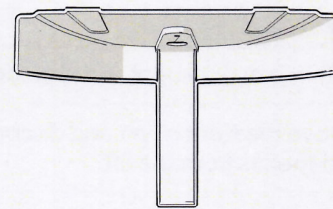
Press the safety edge in to activate the micro switch. The lift should stop and the PCB should display an **E4** and **E5** codes.

6 PSE Springs

Check the position of the safety edge springs and make sure they are placed correctly within the cover and main frame.

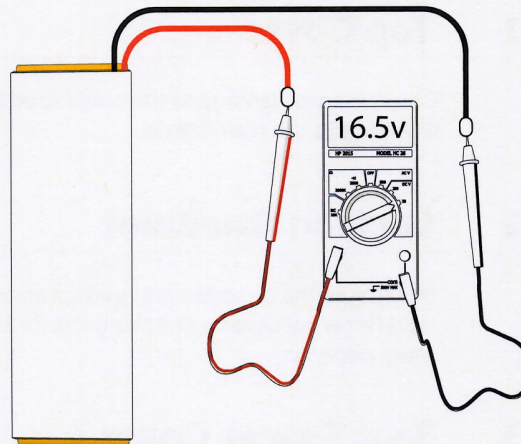
7 Earth wire connected

Check that the earth wire is in good condition and connected to the PCB and main frame.



8 Battery Voltage

- 1 Switch the mains supply off and the lift off.
- 2 Remove the front cover and disconnect the batteries from the lift.
- 3 Recharge the batteries using the external Lithium-Ion charger.
- 4 Set the multimeter to D/C volts, setting above 40v.
- 5 Place RED probe to RED battery terminal.
- 6 Place **BLACK** probe to **BLACK** battery terminal.
- 7 The reading on the multimeter should be 16.5v.
- 8 Take individual readings from each battery.

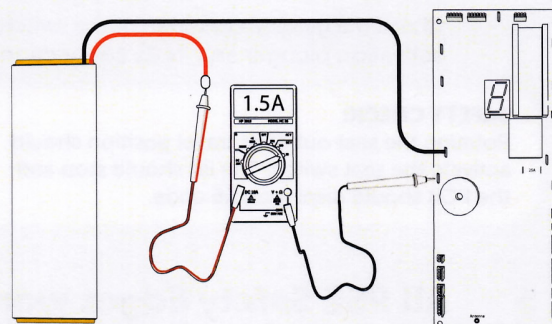


RESULT:

If the individual readings are more than 1v different, replace both batteries.

9 PCB Charge rate

- 1 Set the multimeter to D.C. Amps. Depending on the meter used, one of its leads may need to be located to a different socket to obtain the correct reading and prevent damage to the meter (refer to meter instructions).
- 2 Park the lift on a charge point with (C1) on the display and remove the front cover.
- 3 Disconnect one of the **RED** battery terminals from the PCB.
- 4 Connect the multimeter **RED** probe to the **RED** battery terminal and the **BLACK** probe to the PCB B+.
- 5 The meter should now be bridging the circuit between the board and the batteries.



RESULT:

The charging rate should read between **0.15A - 1.5A** depending on how full the batteries are.

10 Tenon Bearings

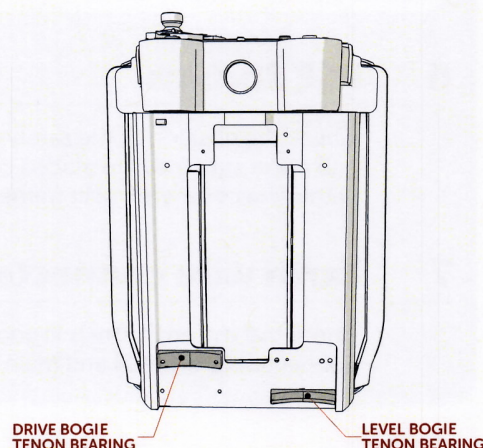
Check the condition of the tenon bearings and make sure they are firmly secured. Rotate the main bogies to check their operation.

11 Wires correctly connected

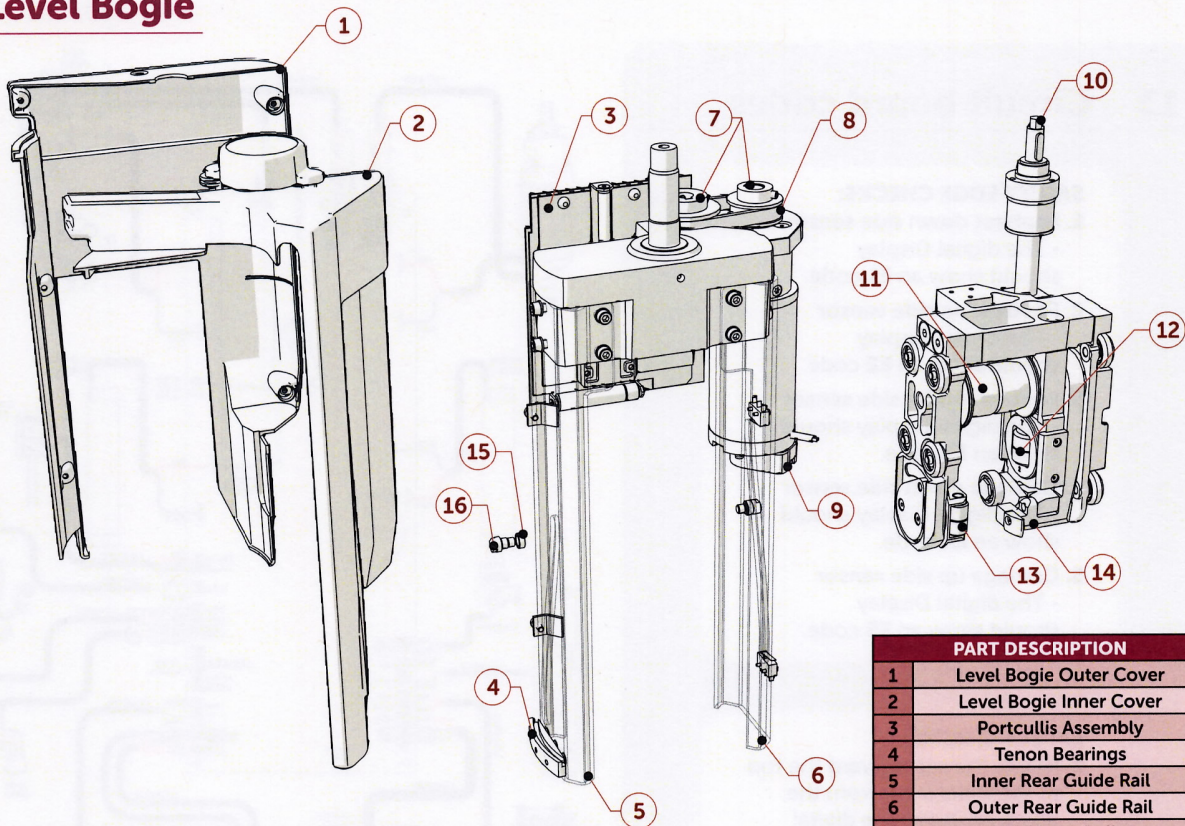
Check all connections to the PCB and individual components.

12 Check fuse PCB

Make sure a 25A rated fuse is placed on the PCB and correctly inserted.



Level Bogie



1 Level Bogie Outer Cover

Check for any damage to the cover itself and the fixings to the level bogie frame.

2 Level Bogie Inner Cover

Check for any damage to the cover itself and the fixings to the level bogie frame.

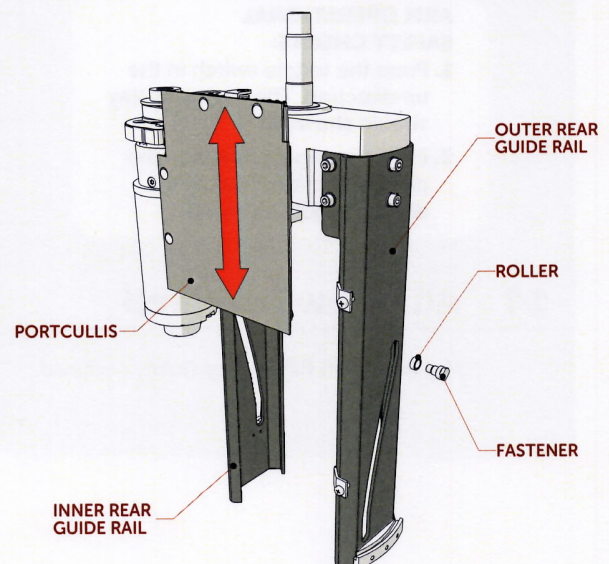
3 Portcullis Assembly

Make sure the portcullis slides up and down freely and all fixings are present and secured.

4 Tenon Bearings

Check the condition of the tenon bearings and make sure they are firmly secured.

PART DESCRIPTION	
1	Level Bogie Outer Cover
2	Level Bogie Inner Cover
3	Portcullis Assembly
4	Tenon Bearings
5	Inner Rear Guide Rail
6	Outer Rear Guide Rail
7	Level Motor Pulleys
8	Level Motor Drive Belt
9	Level Encoder
10	Ball Screw Assembly
11	Top Roller
12	Side Wheel Assembly Long Hub
13	Side Wheel Assembly Short Hub
14	Anti Tilt Hook Assembly
15	Guide Steering Roller
16	Guide Steering Roller Fastener



5 Inner Rear Guide Rail and Steering Roller

Check the guide rail for damage and wear. Make sure it is greased using Superlube. Check the condition of the steering roller guide and its fastener.

6 Outer Rear Guide Rail and Steering Roller

Check the guide rail for damaged and wear. Make sure it is greased using Superlube grease . Check the condition of the steering roller guide and its fastener.

7 Level Motor Pulleys

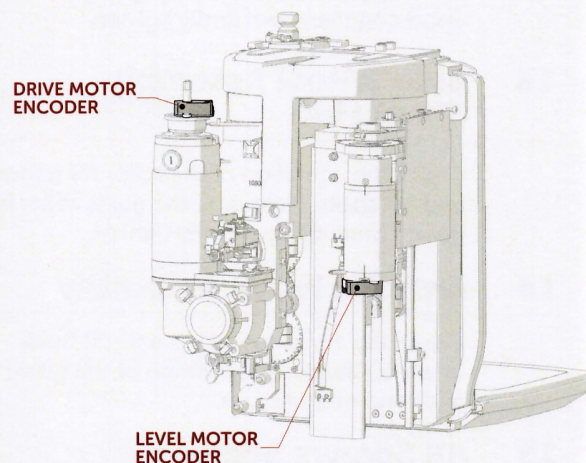
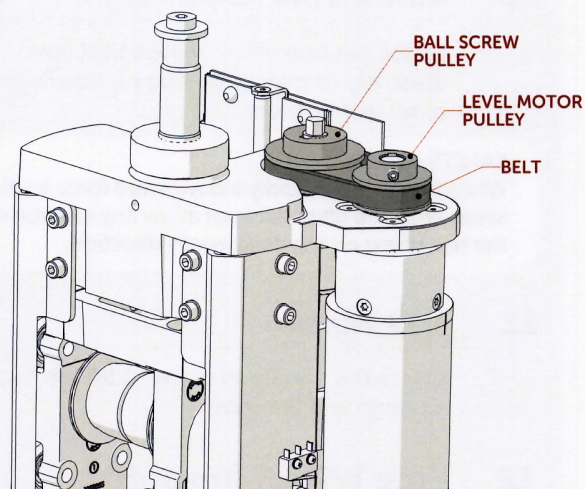
Check the guide rail for damaged and wear. Make sure it is greased using Superlube grease . Check the condition of the steering roller guide and its fastener.

8 Level motor drive belt

Check the condition of the belt.

9 Level encoder

The PCB will monitor the pulse of the encoder. Check the encoder connection. Make sure the encoder is correctly set, clean and firmly attached to the level motor axle.



10 Ball Screw Assembly

Check the operation of the ball screw assembly to make sure that no downward movement occurs.

SAFETY CHECK:

When the lift stops, apply a downward force to the lower arm. The lift should not allow any rotation of the ball screw on the downwards direction.

11 Top Roller

Check the condition of the roller for damage and flat spots.

12 Side Wheel Assembly Long Hub

Check the condition of the roller for damage and flat spots. Make sure the guide roller is in good condition and firmly tighten.

13 Side Wheel Assembly Short Hub

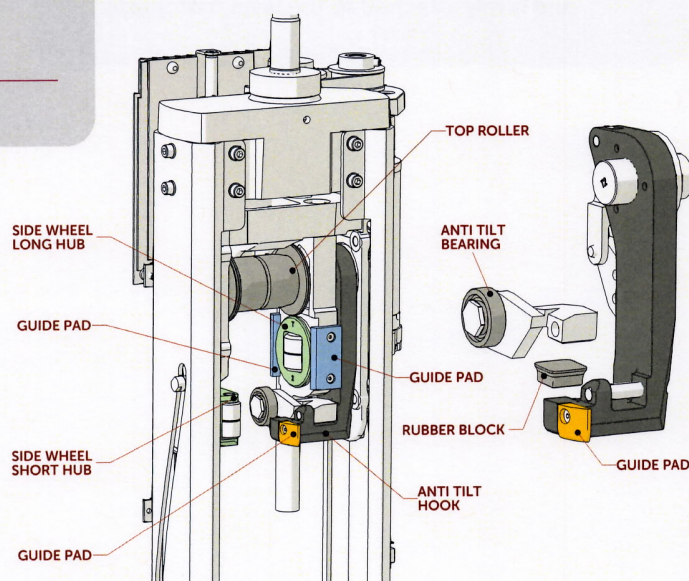
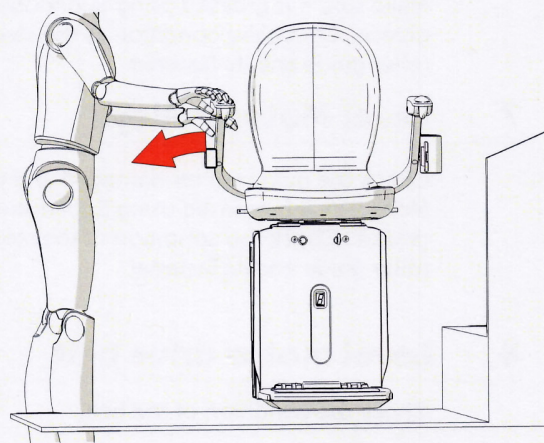
Check the condition of the roller for damage and flat spots. Make sure the guide roller is in good condition and firmly tighten.

14 Anti Tilt Hook Assembly

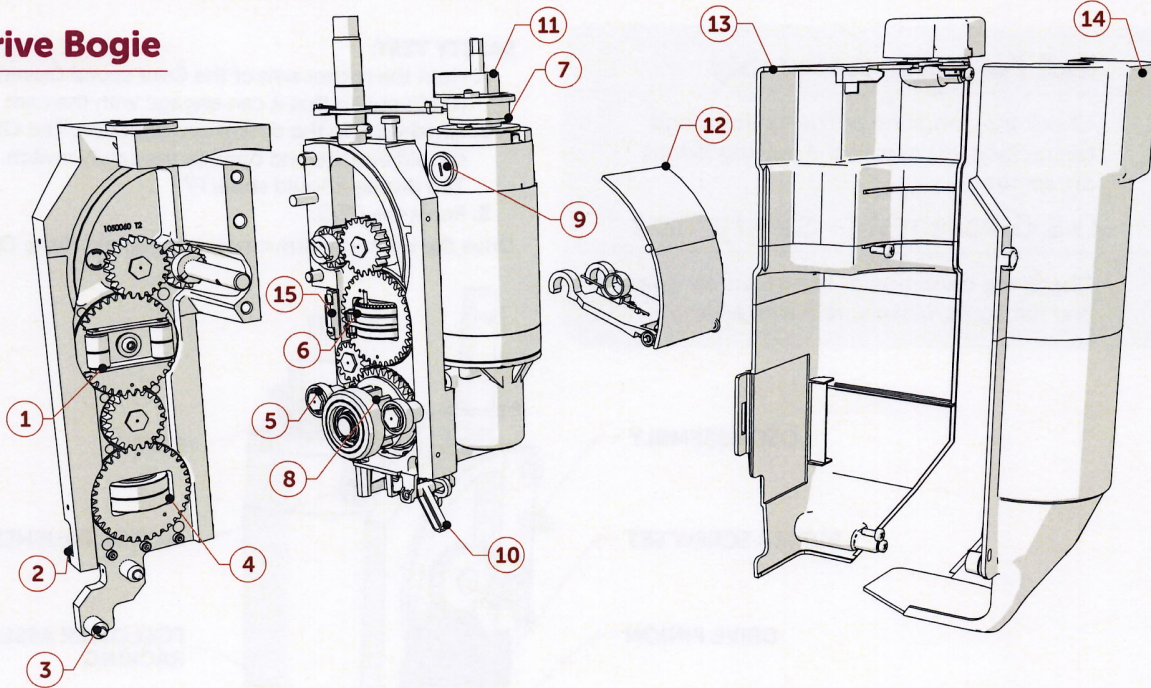
Check the condition of the anti-tilt hook bearing. Check the condition of the guide pads and rubber block.

15 All Screws Secured

Make sure all fixings are firmly secured.



Drive Bogie



1 U-Beam Assembly

Check the condition of the rollers for damage or flat spots. The roller should rotate freely.

2 Tenon Bearings

Check the condition of the tenon bearings and make sure they are firmly secured.

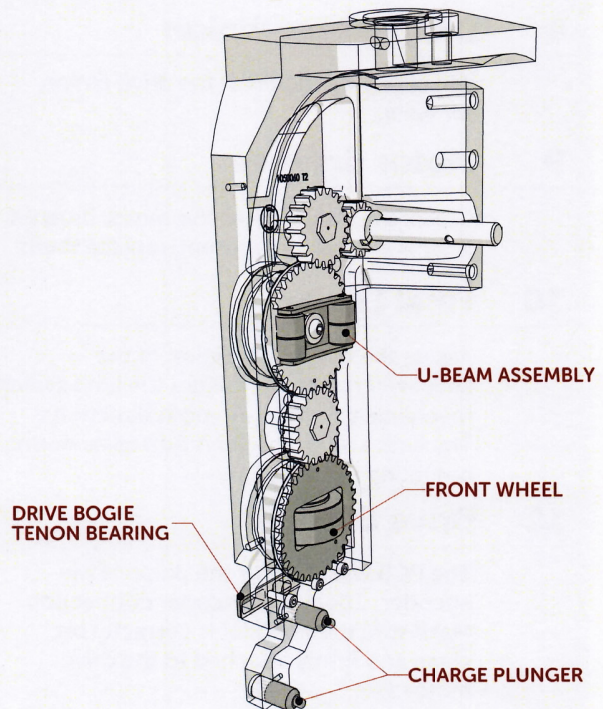
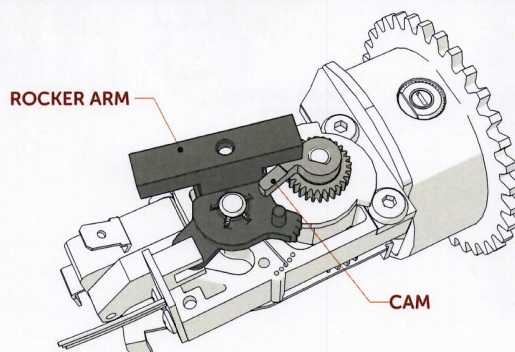
3 Charge Plungers

Check the condition of the plungers, they should spring in and out freely. Replace if worn. Check the condition of the harness.

4 Front wheel Roller

Check the condition of the roller for damage or flat spots, the roller should rotate freely.

PART DESCRIPTION		8	Drive Motor Pinion
1	U-Beam Assembly	9	Motor Brushes
2	Tenon Bearings	10	Final Limit
3	Charge Plungers	11	Drive Encoder
4	Front Wheel Roller	12	Folding Shutter Assembly
5	Rail Follower Assembly	13	Drive Motor Outer Cover
6	O.S.G. Assembly	14	Drive Motor Inner Cover
7	Motor Brake	15	Buffer Screw Set



5 Rail Follower Assembly

Check the condition of the bearings and the racking. Make sure the racking fixings are secured.

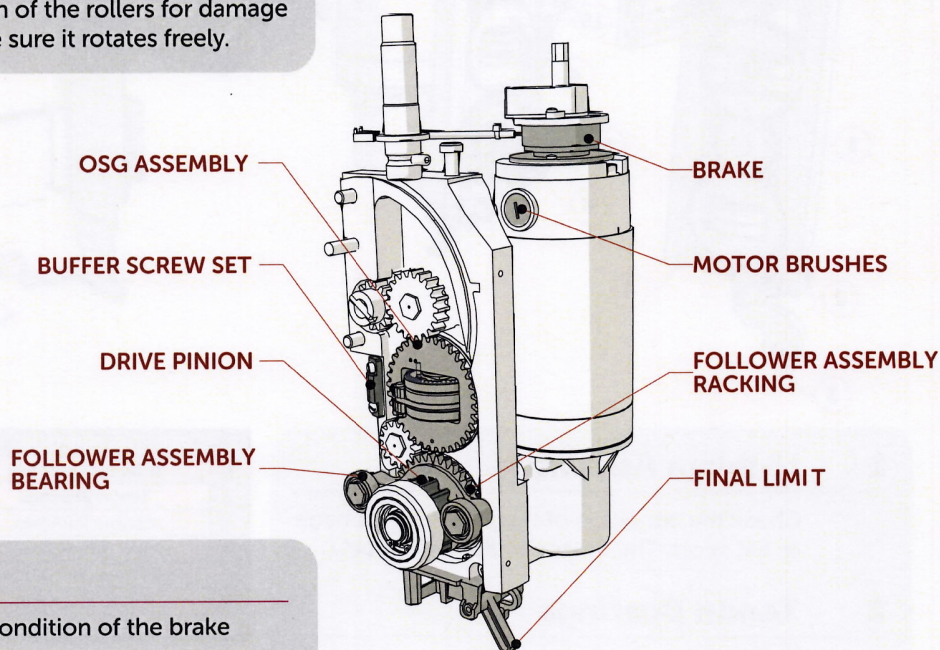
6 O.S.G Assembly - Safety Test

Check the condition of the rollers for damage and flat spots. Make sure it rotates freely.

SAFETY TEST:

1. Hold the rocker arm of the Over speed Governor (OSG) out so that it can engage with the cam.
2. Hand wind in the downward direction. The OSG should engage and operate the safety switch. The display should show F7.
3. Reset the OSG.

Drive the lift to confirm correct operation of the OSG.



7 Motor Brake

Check the overall condition of the brake and harness.

8 Drive Motor Pinion

Check the condition of the drive pinion for wear.

9 Motor Brushes

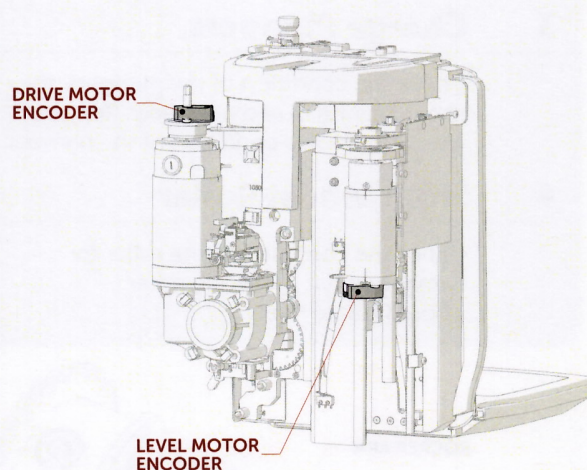
Check the condition of the motor brushes. If signs of wear are present, replace them.

10 Final Limit

Assess the overall condition of the limit switch assembly. Press the limit switch mechanically slightly in both directions. The limit switch should return to its normal operating position.

11 Drive Encoder

The PCB will monitor the pulse of the encoder. Check the encoder connection. Make sure the encoder is correctly set, clean and firmly attached to the drive motor axle.



12 Folding Shutter Assembly

Check the condition and operation of the folding shutter.

13 Drive Motor Outer Cover

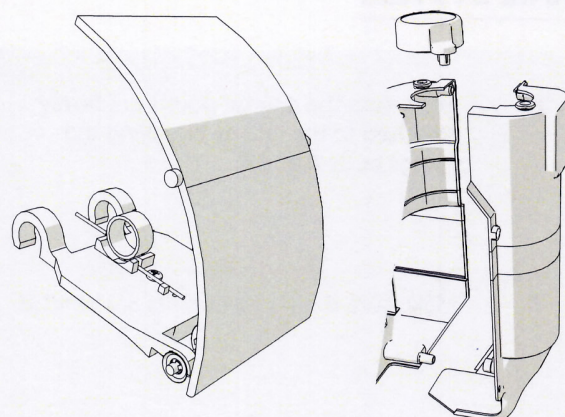
Check for any damage to the cover itself and the fixing to the drive bogie frame.

14 Drive Motor Inner Cover

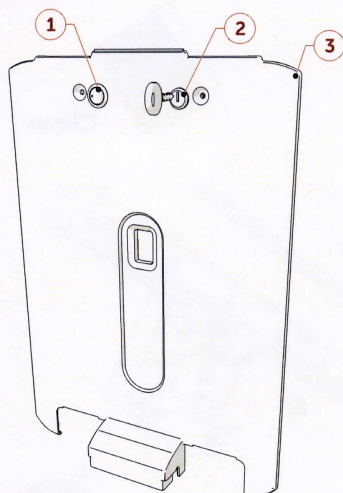
Check for any damage to the cover itself and the fixing to the drive bogie frame.

15 All Screws Secured

Make sure all fixings are firmly secured.

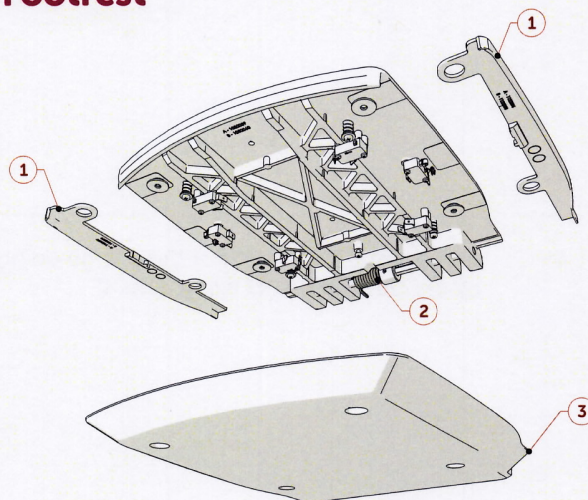


Front Panel



PART DESCRIPTION	
1	On/Off Switch
2	Key Switch
3	Front Panel
4	Screws

Footrest

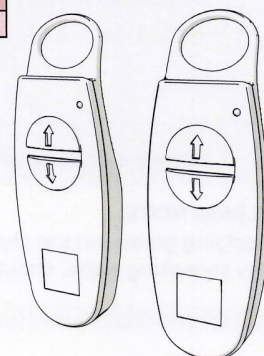


PART DESCRIPTION	
1	PSE Safety Edges
2	Footrest Torsion Spring
3	Footrest Cover
4	Screws

REMOTE CONTROLS OPERATION

SAFETY CHECKS:

1. Press the Up button. The digital display should show A4.
2. Press the down button. The digital display should show A5.

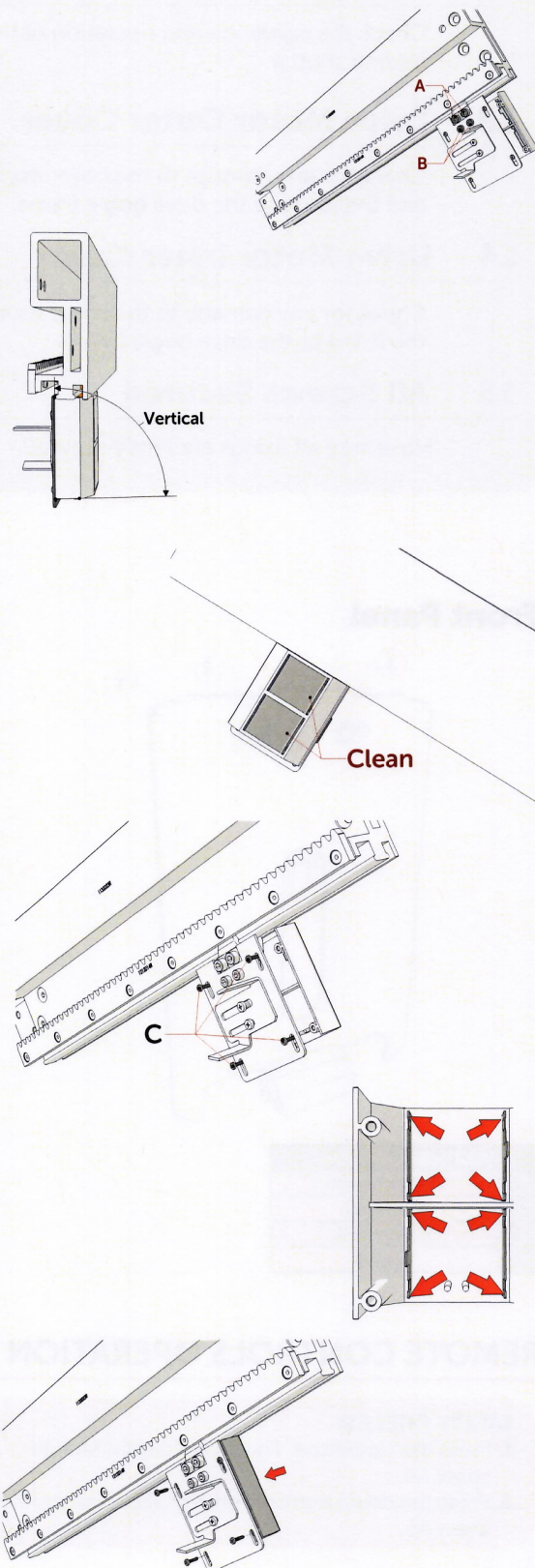


RAIL SYSTEM

- 1 Make sure the charge points are firmly attached to the rail, by checking the fixings bolts **A** and **B**
- 2 Make sure the charge points are vertical
- 3 Make sure they are clean, use the Garrison Block for this
- 4 Remove the front cover of the charge points by unscrewing the 4x fixing bolts **C**
- 5 Make sure there is no movement on the internal brackets of the charge plates, making sure all 4 on each plate are folded and slightly twisted outwards
- 6 Place the cover back

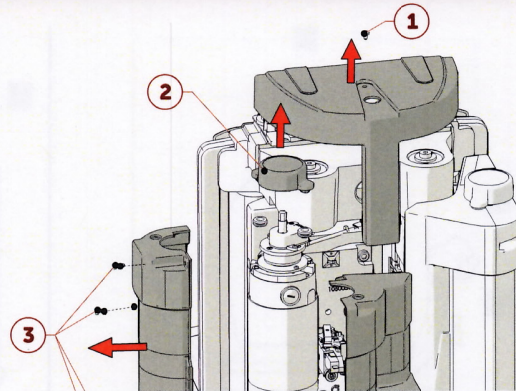
PLEASE NOTE:

Applying grease on the charge points to remove any squeaking noise, should be done **lightly**.



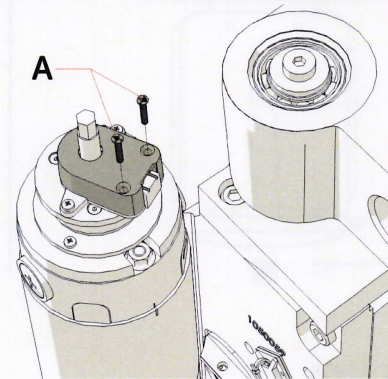
ENCODER POSITIONING CHECK

In order to access the 180 encoders remove the top cover (1), drive motor cover (2) and levelling motor cover (3).



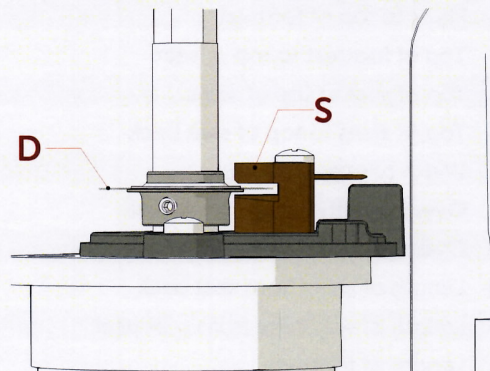
Using a screwdriver PZ1, remove the encoder cover screws (A).

This has to be done for the Level and Drive encoders.



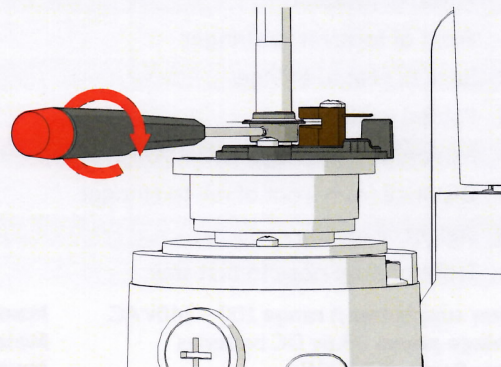
Make a visual inspection to ensure the encoder discs (D) are not touching the optical sensor (S).

ANY DEBRIS PRESENT SHOULD BE CAREFULLY CLEANED.



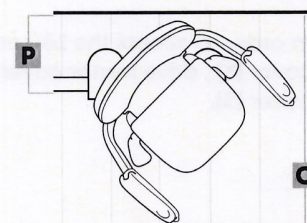
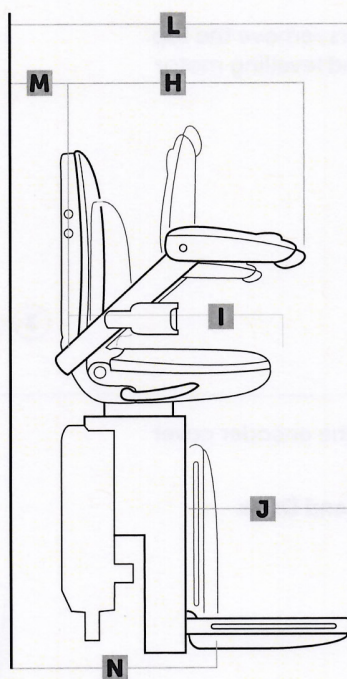
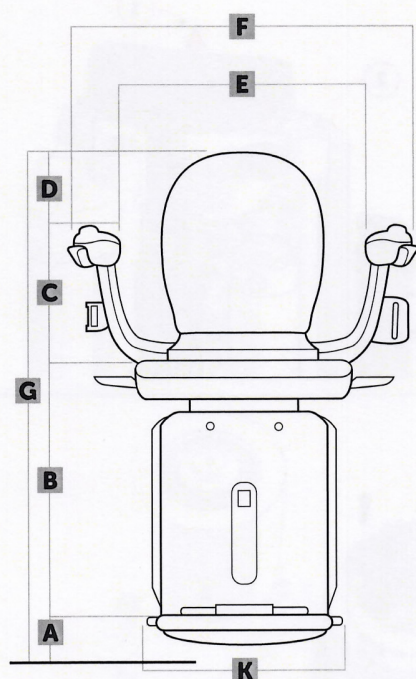
Using the encoder tool, make sure the disk is firmly attached to the motor shaft.

Drive the lift up/down a few inches to make sure the disk is not touching the optical reader when the motor is energised.
Correct if necessary.



SPECIFICATIONS & DIMENSIONS

0519



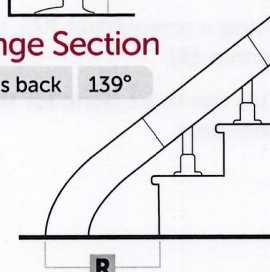
Rail Angles

Min - 0°

Max - 58°

Hinge Section

Folds back 139°



Maximum Rail Length

30 metres 1181 inches

Dimensions

	mm	inch
A Floor to top of footrest	50	2
B Top of footrest to top of seat	485	19
C Top of seat to top of arms	245	9¾
D Top of arms to top of seat back	195	7¾
E Width between armrests	480	19
F Overall width including seatbelt	620	24½
G Overall height	975	38¾
H Length of arms from seat back	460	18
I Length of seat base from seat back	435	17
J Length of footrest	360	14¼
K Width of footrest	335	13¼
L Front of footrest to stringer	640	25¼
M Back of seat to stringer	35	1½
N Folded width	335	13¼
O Minimum width required to swivel at top	690	27¼
P Distance from front of rail to stringer	180	7
Q Height of leg	125 _(min) 680 _(max)	5 _(min) 26¾ _(max)
R Front of drop nose to first stair	450	17¾

Power supply input range 100 - 240v AC
Carriage power 29.6v DC batteries
Motor Power 0.375KW

Maximum Capacity 120kgs (18.8st) (264lbs)
Motor Output Speed No greater than 0.15 m/s
Method of Drive Rack and Pinion

Measurements are only a guide and subject to site and client survey.

DIAGNOSTIC DISPLAY

Fatal Errors



Relay Fault

Remove power supply and isolate batteries from the PCB to reset the controller. Replace the PCB.



Brake Fault

The lift has failed to release the brake. Check battery voltage and brake connections.



Main Motor Fault

Meaning: the Drive Motor demand was too high

Action: Check for obstructions, weight limit or mechanical failure.



Tilt Motor Fault

Meaning: Tilt Motor demand was too high

Action: Check for obstructions, weight limit or mechanical failure.



Battery Flat

Meaning: Lift has reached a low battery situation in travel. Audible alarm present. Possible obstruction.

Action: Check battery voltage individually. Press directional switch to change F5 to E7 and drive down to closest charge point to recharge the batteries. E7 will clear automatically once the batteries have reached a safe charge to drive



OSG switch activated

Meaning: OSG has mechanically activated. **Do not hand wind the lift downwards.**

Action: Service engineer needed to manually reset or replaced the OSG if damaged.

Note: If the OSG has mechanically engaged, it should always be replaced.



Final Limit switch

Meaning: Lift has over travelled its parking position or the switch has activated accidentally.

Action: If the lift has over travelled its parking position at the top or bottom of the rail, check the drive encoder making sure it's correctly set, attached and clean. Once the checks are complete, reprogram the lift. If the switch has been activated accidentally, return it to its correct position.



Tilt Limit Switch

Meaning: Levelling protection switch has activated by the lift entering an angle below 0 or above 60.

Action: Check the rail install for negative angles or above 60. If the rail is within limits, check level reference set in the carriage. If the level reference is set incorrectly, reprogram the lift setting the level reference in P1.



OSG Pulse not present

Meaning: PCB is not receiving information from the OSG.

Action: Check rotation of the OSG using the flashing dot on the digital display or visually on the OSG. If the rotation is present, check for dirt on the optic switch, spring tension and the OSG connections. If the problem persists, replace the OSG.

Errors



Foot Switch Down Side

Meaning: The safety switch has been opened

Action: Check for obstructions or footrest wire connection issues/faults.



Foot Switch Up Side

Meaning: The safety switch has been opened

Action: Check for obstructions or footrest wire connection issues/faults.



Foot Switch Down Side (under)

Meaning: The safety switch has been opened

Action: Check for obstructions or footrest wire connection issues/faults.



Edge Switch Down Side

Meaning: The safety switch has been opened

Action: Check for obstructions or wire connection issues/faults.



Edge Switch Up Side

Meaning: The safety switch has been opened

Action: Check for obstructions or wire connection issues/faults.



Seat not in place (swivelled)

Meaning: The seat is swivelled or the safety switch has been opened

Action: Place the seat back in the travelling position. Check switch positioning or wire connections.



Battery Low

Meaning: The lift has reached a low battery situation.

Action: Drive the lift down the rail to the closest charge point and leave to recharge. E7 will clear automatically once the lift has reached a safe battery charge to drive.



Heat sink over temperature

Meaning: Lift won't operate due to high temperature on the PCB.

Action: Allow the lift to cool down. If the problem persists, replace the PCB.



Encoder Fault (drive or level)

Meaning: The PCB is not receiving information from the Drive or Levelling encoder.

Actions: Check encoder pulse and wire connections. Make sure the encoder is correctly set, attached and clean. When previous steps complete, reprogram the lift.



Encoder Drive Fault

Meaning: The PCB is not receiving information from the Drive encoder.

Actions: Check encoder wire connections. Make sure the encoder is correctly set, attached and clean. Check for any mechanical restrictions on the drive side limiting the operation of the drive motor.



Encoder Tilt Fault

Meaning: The PCB is not receiving information from the tilt encoder.

Actions: Check encoder wire connections. Make sure the encoder is correctly set, attached and clean. Check for any mechanical restrictions on the level side limiting the operation of the leveling motor.

Hardware Faults



Safety switch grounded to earth or multiple switch fault

Meaning: A safety switch is making contact with ground or multiple safety switches are open.

Action: Check switches individually to ground and multiple activations.



Levelling system over reacting

Meaning: The lift has stopped due to a sudden vibration.

Action: Make sure the rail is securely fixed to the floor.



Hinge Communication Fault

Meaning: The PCB cannot communicate with the hinge control box.

Action: Check LED3 flashes on hinge PCB. Check voltage supply to hinge box. Check hinge wiring to hinge PCB for damage. Pair PCB and hinge control box again. If problem persists, replace the hinge control PCB.



Secondary Processor U2 not responding

Meaning: Internal PCB error

Action: Reset PCB. If the problem persists, replace the PCB.



Memory store not responding

Meaning: Internal PCB error.

Action: Reset PCB. If the problem persists, replace the PCB.



Both Hinge switches closed at the same time

Meaning: The hinge section has the interlock and folded switches closed.

Action: Check for continuity on the interlock and folded switches. Only one can be closed at one time.



Hinge end-limits not found (Timeout)

Meaning: The hinge operation has exceeded 60 seconds without closing either the interlock or folded switches.

Action: Check for obstructions. Check the mechanical operation of the hinge using the manual activation buttons in the hinge control box. Check the operation of the hinge limit switches.



Over-tilt Fault

Meaning: The lift has over tilted.

Action: Check drive encoder and level encoder operation. Check encoder pulse and wire connections. Make sure the encoder is correctly set, attached and clean. Once previous steps are complete reprogram the lift. Make sure the top and bottom charge points are cleaned, firmly attached and in good condition.



Internal Voltage supplies not within limits

Meaning: Internal PCB error

Action: Reset PCB. If the problem persists, replace the PCB



Accelerometer (tilt sensor) reading outside limits

Meaning: Internal PCB error

Action: Reset PCB. If the problem persists, replace the PCB

Charger



Charger connected and operating

Meaning: The lift is on the charge point and the batteries are charging. Once completed the display will change to C4.



Charger connected but charger volts too low

Meaning: The lift is on the charge point but the voltage is too low.

Action: Check power supply output.

Check charge point for intermittent contacts, loose wiring, dirty or loose charge plates, loose bracket, damaged plastics or charge plungers.



Charger connected but charger volts too high

Meaning: The lift is on the charge point but the voltage is too high.

Action: Check charge point internal wiring and power supply.



Charger connected batteries fully charged

Meaning: The lift is on the charge point and the batteries are charged.



Charger connected but no battery seen (or battery faulty)

Meaning: The lift is on the charge point but the batteries are rejecting the charge.

Action: Check batteries connection and reset PCB. If persistent, replace the batteries.

Normal operation



Lift ready to use

Beeping as no charge seen



Moving Up

Arm switch control



Moving Down

Arm switch control



Moving Up

Remote control



Moving Down

Remote control



Lift waiting for hinge to operate



Lifting Footrest – Remote control

Both buttons at once

Programming codes



**Set Hand Mode
(left hand / right hand)**
Meaning: The lift has entered setting hand mode. No hand selected.



Left Hand mode selected



Right Hand mode selected



**Program mode stage 1
top limit search**



**Program mode stage 2
bottom limit search**



**Program mode stage 3 end
program**



**Programming Fail (check
voltage at charge points and
re-program)**

Meaning: The lift cannot store the program as the datum point was not recognised.

Action: Check the voltage and the polarity on the charge points reprogram the lift.

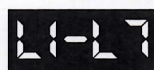


Controller Locked



**Waiting for hinge
address code**

Meaning: The lift is ready to be paired to the hinge control box.



Speed Setting Codes



Hinge Operation Point



**Hinge point set within 80mm
of the Parking Charge point**

Meaning: Selected hinge activation point is too close to the charge point.

Action: Move the lift further away from the charge point and set the hinge activation point again.



**Carriage & seat level
address code**

Mapped rail data mode errors



Chair level is markedly different from last stop

Meaning: The level position has change in relation to the last stop.

Action: The lift will enter J3 (self levelling mode) until the datum is reset at the top charge point. Drive the lift to the top charge point to clear J3.



Chair position is markedly different from the last stop

Meaning: The drive position has change in relation to the last stopped.

Action: The lift will enter J3 (self levelling mode) until the datum is reset at the top charge point. Drive the lift to the top charge point to clear J3.



Self levelling safety mode

Meaning: The lift has entered self levelling mode.

Action: Drive the lift to the top charge point to reset J3. The lift will automatically enter J3 after displaying a code that affects the level/drive position of the lift. J3 is a protection code not an error that have occur. Inspect the charge points for dirt or movement. See Rail System in the maintenance section.



No program stored or corrupted

Meaning: The lift has no program stored.

Action: Program the lift.



The lift has overrun its programmed stop position

Meaning: The programmed stopping position has been over run.

Action: Drive the lift to the top charge point to reset the datum. If persist, reprogram the lift.



The programmed level corrections has diverged from the encoder reading.

Meaning: There is a difference between the expected encoder movement and the encoder reading.

Action: Inspect the level encoder setting and its connection to the PCB.



Map slip is too large

Meaning: The program stored has a large discrepancy against the information received.

Action: Check the position of the final limit stricker at the back of the top and bottom charge points. Reprogram the lift.



Map contains a section not programmed

Meaning: The program stored has a blank area.

Action: Check the position of the final limit striker at the top charge point is not too close or too far away. Make sure the encoder is correctly set, attached and clean. Reprogram the lift.



Map section of tilt angle is too large

Meaning: The tilt corrections stored during programming has exceed the threshold set.

Action: Reduce speed selected through vertical bends. Check levelling encoder pulse and wire connections. Make sure the levelling encoder is correctly set, attached and clean. Once the previous steps are done, reprogram the lift.



Difference between two adjacent mapped tilt angles is too large.

Meaning: The tilt corrections stored during programming has big changes of tilt between two adjacent points.

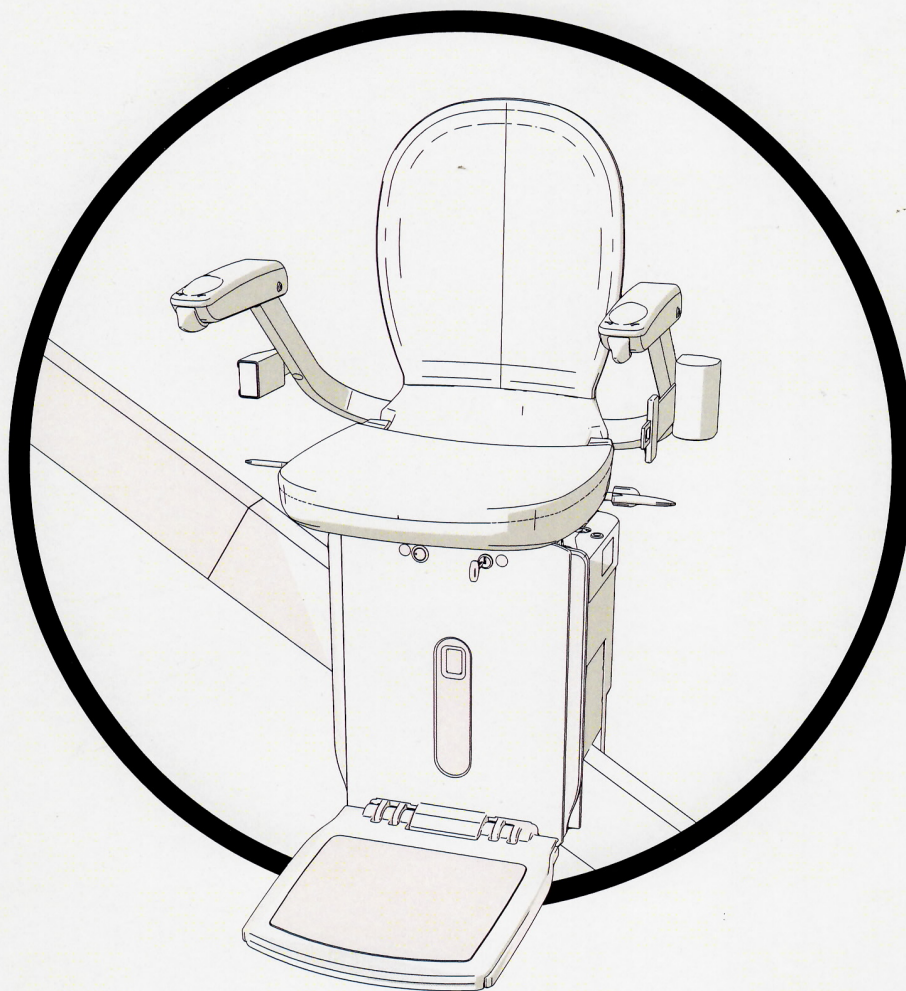
Action: Check for sudden changes of tilt due to bad joints. Check levelling encoder pulse and wire connections. Make sure the levelling encoder is correctly set, attached and clean. Once the previous steps are done, reprogram the lift.

NOTES

NOTES

Handwriting practice lines consisting of 20 horizontal dotted lines.

ACORN STAIRLIFTS



Thank you for choosing Acorn.

You can rest assured that your stairlift will provide many years of reliable service and allow you to enjoy the full use of your home.

**Your stairlift is expertly designed and manufactured to the very highest standards.
Regular maintenance is required to ensure safe and trouble-free service.**